

FLIGHT

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ENGINEER
&
AIRSHIPS

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"FLIGHT" PHOTOGRAPHS

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2.

For Sizes and Prices, see Advert. on page i.

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list —

1928

- Mar. 24 Rugby, R.A.F. v. Army, at Twickenham
- Mar. 24 28 Sqdrn. R.A.F. Old Boy's Association Social
- Mar. 27 Annual General Meeting of R.Ae.S. and Inst.Ae.E.
- Mar. 28-
- Apl. 4 Exhibition of Light Aeroplanes, Folkestone Drill Hall.
- Apl. 7 Cinque Ports Flying Club Demonstration, Lympne
- Apl. 8-9 Aerial Display, Suffolk Aeroplane Club, Hadleigh.
- Apl. 12 "Some Aspects of the Development of the Slot." Mr. G. R. Volkert, before R.Ae.S. & Inst.Ae.E.

INDEX FOR VOL. XIX.

The Index for Vol. xix of "Flight" (January to December, 1927) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C.2. Price 1s. per copy (1s. 1d. post free).

EDITORIAL COMMENT



THE history of the Handley Page aerofoil slot is a somewhat peculiar one. Originally invented almost simultaneously in this country and in Germany, by the Handley Page firm and Herr Gustav Lachmann, respectively, the wing slot was at first regarded as a means of giving extra lift. The auxiliary aerofoil was mechanically operated and a number of various types of it were experimented with. Then came a period when modern aerodynamic aerofoil theory seemed to indicate that the main function of the slot was confined to the relatively limited utility of reducing the chord, the wing span being irreducible from considerations of induced drag, with the possible exception of pure racing machines, in which, owing to the enormous excess of power, the absence of any need for a good climb, and the fact that at high speed the induced drag is negligible, the lift slot might with advantage, be employed.

Safety in Flying

The next period, very possibly influenced by some such considerations as these, was marked by the introduction of the slot as a means of obtaining powerful lateral control, accompanied by a very small yawing moment, or even by one of opposite sign, so that the use of the lateral controls at or near the stall did not require extra large rudders for the purpose of overcoming the aileron drag. The first control slots were mechanically operated, and thus introduced extra complication.

The latest step in the evolution of the slot is, as our readers know, the simplification resulting from making the wing-tip slots automatic in action, *i.e.*, hinging the auxiliary aerofoil on links in such a manner that

when a certain angle of incidence is reached, the auxiliary aerofoil is automatically moved away from its position close against the leading edge of the main aerofoil, thereby opening the slot. The automatic type of slot is, therefore, not in any way under the control of the pilot, but comes into operation automatically as and when required. The very fact that the new type of slot is automatic in action is obviously a step in the right direction. It is well known by now, from official announcements and other sources, that the new type of slot has been fitted on a large number of service types of aircraft. Hitherto, so far as we know, no machine employed regularly on the air routes has been so fitted, but there is no doubt that this is merely a question of time.

With the exception of the Handley Page Company, which has, of course, carried out very extensive experiments, more work has been done on the automatic slot by the De Havilland Aircraft Company than by anyone else, and the demonstration which took place last Monday, and which is described in this issue of *FLIGHT*, proved that a stage has now been reached where the automatic slot can be said to have attained a very large measure of success.

What makes the work of the De Havilland company all the more convincing is that not only is that firm not directly interested in the slot, except in so far as anything tending to make for safer flying must necessarily be of interest, but that when the work was undertaken, no great hopes were, we believe, entertained as to any striking success. When, therefore, the firm has now, as a result of considerable experience, become convinced that the automatic slot is very well worth while, it seems to indicate that, to put it colloquially, "there is something in it." Certainly, Monday's demonstration was very impressive, and it can be said as a result of it that the automatic slot will undoubtedly make for greater safety in flying.

Lest it might be thought by the uninformed that the automatic slot can and will make a machine entirely "fool-proof" to the extent of absolutely preventing a pilot from crashing, it might be well to point out here that this is not the case. The slot does not prevent a machine from stalling and,

after stalling, from putting its nose down and going into a dive until "unstalled." What the slots do is to make the aeroplane laterally stable in the stalled condition, with the result that, although the machine may get into a spiral, it will definitely not spin. So far as we can see, that is all the automatic slot does. But that is a very great deal.

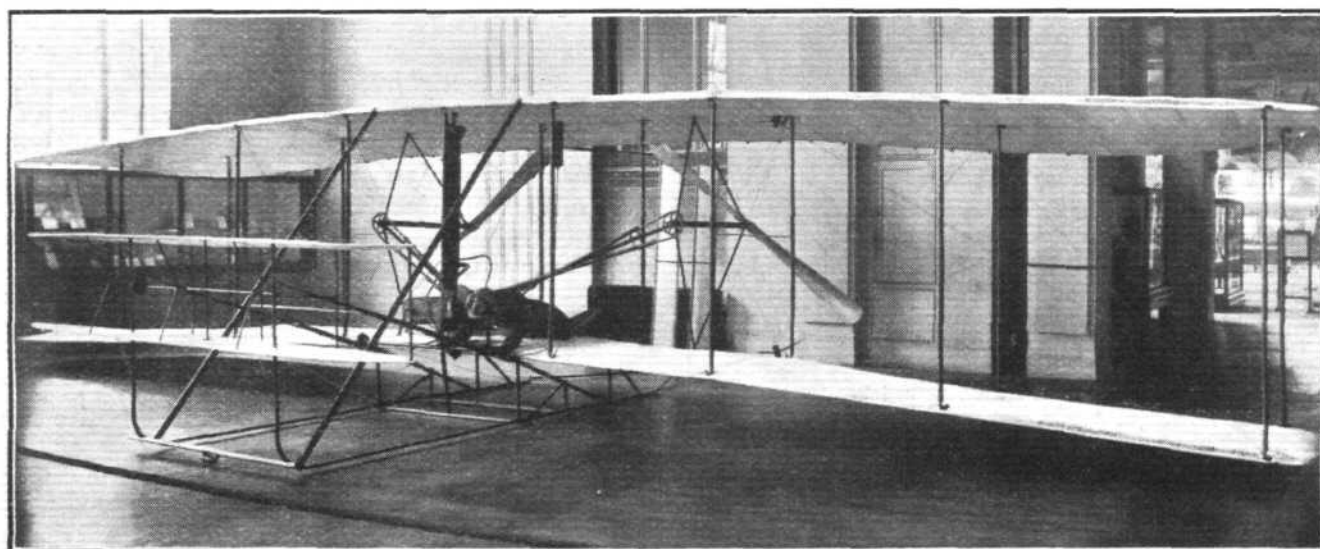
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Britain Abroad

Some weeks ago we referred to the forthcoming aero shows to be held during the coming summer at Paris and Berlin, and expressed the hope that British aviation might be well represented, in the sense of a collective exhibit by the Society of British Aircraft Constructors. We now learn definitely that this will not be the case. Personally we regret this decision. The French Aero Show has come to be regarded as the most important in Europe, and whether or not any actual business is likely to be done as a result of exhibiting, the fact remains that the air attachés and other Government officials from practically all the nations which maintain an air service make a point of attending this show. Thus there is an excellent opportunity for meeting these officials, for getting to know them, and for at least paving the way towards future business.

In the case of the Berlin show, as the first to be held since the war, this is certain to be a very representative one, and as undoubtedly British aircraft are becoming regarded as more than equal to those of any other nation, concerted action on the part of the S.B.A.C. would have been eminently desirable. However, we learn that the Treasury has refused to give any grant-in-aid for the purpose, and the project has, regretfully we are sure, had to be dropped. This is all the more unfortunate as the French *Chambre Syndicale*, the French equivalent of our S.B.A.C., has decided to exhibit as a body. Russia also will show at Berlin. Fortunately Great Britain will not be unrepresented, as we are informed that several aircraft and engine firms have decided to exhibit individually. But to make a really impressive show, concerted action on the part of the industry would have been preferable.

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[*"FLIGHT"* Photograph

FIRST SUCCESSFUL AEROPLANE AT SOUTH KENSINGTON : The earliest biplane designed, built and flown by the Wright Brothers, is now on view at the South Kensington Museum, lent by Mr. Orville Wright. The engine was also designed and built by the famous pioneer brothers.



SURVEYING THE ZAMBESI RIVER : A pictorial record of the aerial survey of the Zambesi River carried out by the Aircraft Operating Co., Ltd. (1)-(2) Converting the D.H.9-Nimbus from landplane to seaplane. (3) Ready for launching. (4) Launching. (5) Afloat! (6) Off for the first test flight. (7) Final adjustments. (8) Now for business!

THE Fourth Finnish Air Display was held on March 4, on the frozen waters at Helsingfors, before an enthusiastic crowd of people. In spite of a very cold wind, and other attractions in the shape of winter sports, which unfortunately fell on the same day, several thousands of people assembled to witness the Display. One may presume that the Finns are accustomed to the cold, but it surely requires

Finnish Navy and not far short of that occupied by the Army. The propagandist efforts of the Air Defence League under the able Presidency of M. Hohenthal has contributed not a little to this accomplishment also. The League organises the Display each year and the proceeds therefrom are devoted to its efforts. But what has done most towards this achievement is the efficient development and organisation of the Air

This is a black and white aerial photograph of Seattle, Washington. The city is built on a steep hillside that slopes down towards the water. In the foreground, a large body of water, likely Puget Sound, is visible. The city's layout is characterized by a grid of streets and numerous buildings, including a prominent church with a tall steeple. The water in the foreground appears calm, reflecting the sky. The overall scene captures the city's coastal location and its expansion into the surrounding hills.

something more than ordinary keenness for aviation to induce such crowds of people to endure with exemplary equanimity, in a biting cold wind, the standing about which is the inevitable accompaniment of an air display. But the Finnish Air Force in the hands of such qualified chiefs as Colonel Solin and Colonel Wuori has established for itself in the minds of the Finnish people a place easily superior to that of the

Force itself, which has stimulated the imagination of the people and awakened in them a pride in the new arm.

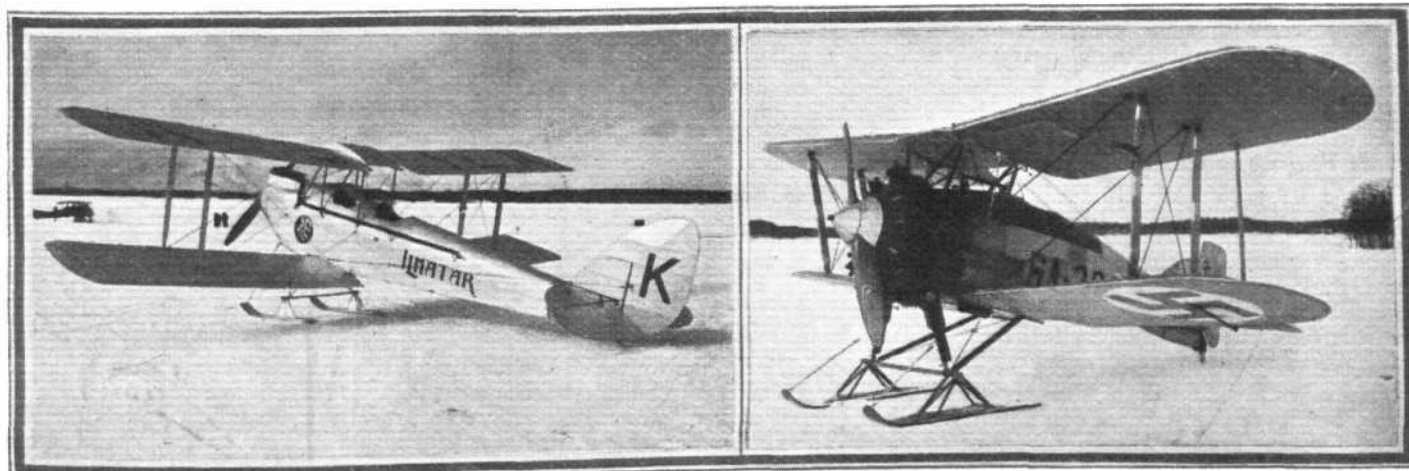
The Display itself was in programme similar to last year. It is becoming increasingly difficult everywhere to introduce any novelty into Display programmes, and it will be interesting to see to what extent the public interest can be maintained in the future in face of this fact.

An aerial photograph showing a large, rectangular, multi-story building complex, possibly a government installation or military base, surrounded by dense evergreen forest and open fields. The building is situated in the center-right of the frame, with a large, flat, open area to its left. The surrounding landscape is a mix of forested areas and cleared land.



The Finnish Air Display : View of Santa Hamina, the Helsingfors seaplane station, which was the operating base for the Pageant. The machines in the background are G.L. single-seaters, and in the foreground some Hansa Brandenburgs.

The Finnish Air Display: An anti-aircraft unit operating against the "air raid" on Helsingfors during the Pageant.



BRITISH MACHINES IN FINLAND : On the left, Finland's first "Moth," on skis. On the right, the Gloster "Gamecock II," similarly equipped.

The programme opened at midday with an air attack on Helsingfors, in which anti-aircraft, machine gun and gas protective units took part. This was carried out much on Hendon lines, and was well done. Two of the attacking machines were brought down and very realistically fell out of the formation when over the town.

The programme proper commenced at 1.15 p.m. with a parade of various types participating, numbering twelve in all, four of which were British as follows: Gloster Gamecock II, Martinsyde F 4, Avro 504 K, D. H. Moth.

It is gratifying to know that these are all recent acquisitions, which indicates that in the re-equipment of their Air Force Finland is looking only for the best and that best is British.

There followed the usual spectacular items of aerobatics, destruction of balloons, bomb dropping, smoke screen and parachute descents.

A feature of particular interest was the appearance of three types of light aircraft: D.H. Moth, Finnish SAASKA (129 h.p. Siemens-Halske motor); Flamingo (129 h.p. Siemens-Halske motor).

The first "Moth" has been purchased by the Air Defence

League and the government have now acquired the licence to manufacture this type.

The single-seater class was represented by the Gamecock II and the Finnish-made "Haukka," both fitted with "Jupiter" engines. These machines might have been shown to much better effect if they had been used for the balloon destruction item which fell very flat owing to the fact that the Caudron 60 machines were quite incapable of manoeuvring fast enough in the wind to destroy the balloons. This would have been an excellent opportunity of demonstrating the remarkable manoeuvrability of the Gamecock type.

The Finnish Aero Company were kept very busy the whole afternoon with passenger flights on their Junkers machines, making 48 flights and carrying no less than 206 passengers at a charge of roughly ten shillings per flight.

Foreign visitors included Major Bjornberg and Captain Kindberg of the Swedish Air Force, Captain L. W. Charley and Captain C. S. Emery from England, Lieutenant Constant of the Lettish Air Force. Conspicuous by their absence this year were Lieut. Colonel Wuori whose presence we are enjoying in England, and Wing Commander Field, who has moved to a "drier" clime.

THE ROYAL DISPLAY AT HENDON

THE King and Queen of Afghanistan had a day with the Royal Air Force on Saturday, March 17. In the morning they visited Halton and were received by Marshal of the Royal Air Force Sir Hugh Trenchard, Air Vice-Marshal Sir Phillip Game, Air Vice-Marshal C. L. Lambe (Commandant of the Centre), Sir Samuel Hoare and Lady Maud Hoare, and Sir Phillip Sassoon. The workshops, class-rooms and laboratories were inspected by the King. In one class-room a lecture on Mohammedanism was being given by an officer, who had seen service in the East. After luncheon the visit to Hendon Aerodrome was made. Their Majesties were received by Air Marshal Sir John Salmond and his staff. The first event was a demonstration of low bombing on tents by three Gloucester "Grebe" single-seater fighters of No. 25 Fighter Squadron. The machines flew past the Royal enclosure, dived down from various angles, and released their bombs by sight. The tent soon caught fire and burnt to ashes. Armstrong-Siddeley "Siskins," of No. 56 Fighter Squadron, gave an exhibition of air drill by radio telephony. A long descending spiral was followed by a thrilling upward loop by three flights in line abreast during the manoeuvre, styled "Follow-my-Leader."

Next a Handley-Page "Hyderabad" night bomber engaged in fight with two Gloucester "Grebes." One of the small machines suddenly made a spinning dive, trailing a curving line of smoke, and the bomber also assumed a descent in flames. An exceedingly thrilling spectacle was the dive of Fairey "Fox" day bombers in flights of threes. They showed how bombing at great speed makes resistance from the defence force very difficult. They swept past the Royal visitors not higher than forty feet, and quickly became mere dots in the sky again.

An exhibition of a quick ascent in mass was given by "Siskins" belonging to No. III Fighter Squadron. From opposite the Royal Stand the nine machines took off rapidly on the word of command, and in a minute or two were flying over the King and Queen. The individual display by two officers of No. 19 Squadron on "Grebe" fighters was remarkable. They climbed absolutely vertically, flew upside down for appreciable distances, climbed in a spin along a corkscrew

path, looped and rolled. Some of their feats were almost a revelation to the experienced onlookers. Their Majesties were very interested in this event. The public were not admitted to the display. The programmes were printed in English and delicate Persian script. Their Majesties had their copies kept for them as souvenirs.

On March 21 they visited Croydon Aerodrome when the following programme, starting at 10.15 a.m., was arranged:—Arrival at the Aerodrome and Reception by Sir Samuel Hoare, Bart., G.B.E., C.M.G., M.P., Secretary of State for Air.

Visit to the Control Tower, passing through the Administrative Buildings.

View Aerodrome from the roof or the terrace of the Control Tower. Listen-in to radio telegraphic communications with the Imperial Airways incoming Paris-London aeroplane.

Descend to Departure Area.

Demonstration of mail dropping by parachute.

Flight over London in an Armstrong-Whitworth 3-engined 1,188 h.p. passenger-carrying commercial aeroplane, "Argosy" one of Imperial Airways "Silver Wing" fleet employed on the London-Paris air service.

Display of Aerodrome lights, etc., to show procedure in case of night landing.

Demonstration of a light aeroplane (D.H. "Moth" or Avro "Avian") being taken by its pilot from a hangar, flown round the Aerodrome, and put back into the hangar. Inspection of commercial, private, civil and Light Aeroplane Club aeroplanes.

Refreshments served in the Board Room of the Administrative Building; Air Survey Exhibit on view.

Owing to no facilities being accorded our photographer for taking pictures we regret we are unable to do honour pictorially to their Majesties' visit to London's National Aerodrome.

During their Majesties' visit to Lulworth in connection with the displays by the Royal Tank Corps, No. 3 Fighter Squadron, R.A.F., took part in the manoeuvres. They gave a wonderful example of co-ordinated movement—150 m.p.h. as against 15 m.p.h.—as they dived over the tanks as they "caterpillared" en masse past the Royal platform.

Private Flights to Constantinople

MR. IVOR MACLURE and Capt. St. Barbe are flying to Constantinople from England and back in the former's D.H. "Moth," for business purposes. They landed at Wells, Upper Austria, to refuel, on March 18, and immediately resumed the flight.

Air Race from Lympne to Suffolk

IN connection with the flying meeting to be held by Cinque Ports Flying Club at Lympne on Good Friday and Easter Saturday, the Suffolk Aeroplane Club has offered a prize for a race to start from Lympne on Easter Sunday morning across country to their aerodrome at Hadleigh. Any machine present at the Cinque Ports Flying Club Meeting will be eligible for this race. This should prove a big draw to private owners who wish to fly in the Suffolk Club's meeting on Easter Sunday and Bank Holiday as well as at the meeting at Lympne.

Italian Polar Flight

THE Italian ship *Citta di Milano*, which the Ministry of Marine has placed at the disposal of General Nobile to aid his Polar flight, left Spezia on March 20 for Spitsbergen.

The airship *Italia* started on March 19 from Ciampino and arrived in Milan in the early hours next morning, after having made a long flight over Spezia, Turin, and as far east as Verona. As already announced, the airship will leave Milan in about a fortnight's time and fly direct to Spitsbergen.

S. Africa's Women Pilots

MISS MARJORIE JUTA, of Johannesburg, who nearly created a record for South Africa recently by being ready for her solo flight after a week's tuition with Col. Henderson at Cape Town, has now taken her ticket. She was forced to delay her attempt by a return home, and decided then to wait until reaching Cape Town again. Other S. African women pilots who have already qualified are Miss D. Evans and Miss M. Douglas.

DEBATE ON THE AIR ESTIMATES

THE following is a résumé of the Debate on the Air Estimates in the House of Commons on March 12. The space we have available will not permit our giving in detail the speeches of the various Members, and we can only give the salient points raised therein.

Mr. Dalton (Peckham, Lab.), referring to the merits of airships as against aeroplanes, alluded to the day and night aeroplane service, running highly efficiently between New York and San Francisco, and said it would seem that we ought not to give up the hope that we could achieve regularity in long-distance flights by means of aeroplanes if airship communication presented those difficulties which some considered it did present. Regarding subsidies to civil aircraft, he hoped the Secretary for Air was watching carefully in the interests of the taxpayer, and to see that these subsidies were really being well expended and were not being to any extent frittered away on unnecessary and grandiose details. On the question of Iraq, and the statement that cadets from that country were being trained at Cranwell, he hoped that this was an indication that the time was not very far distant when Iraq would be able to undertake its own defence at its own expense. He also asked for information as to whether it is yet known when the scheme for training Indian Cadets at Cranwell would start, and how soon and how fast Cranwell could absorb cadets from India. While admiring the tremendous progress made in air development, he felt it was a pity that an equal scientific achievement was not taking place on the ground—particularly in the coalfields. He wanted to know why the Government had doubled the size of the Military Air Force since 1922. They, on that side of the House, viewed with grave concern the continual growth of offensive forces of the air, not only in this country, but in other countries which, likewise, were increasing their air forces.

Capt. F. E. Guest (Bristol, N., Lib.) said he was disappointed with the Secretary of State for Air's speech. He felt there was a failure to present to the House the real meaning and underlying responsibility which rested on the Air Force itself. They had not been informed of the development of the science and of the increased menace that this weapon might become if improperly handled. He thought the comparisons between our activities and the activities of other countries ought not to have been avoided. He did not complain of the size of the Estimates, and was glad to see that there was an addition of two squadrons for India—which would give them a chance of showing to what extent the air arm could replace mounted or foot troops—and that there were to be two more flights added to the Navy. He wished to know what had been the experience gained by the Air Force in remote parts of the world when it was functioning as a military police? Regarding the question, can the Air Force replace the Navy and the Army, with equal safety to the citizen and with advantage to the taxpayer, he asked to what extent the joint staffs were putting their heads together, and working out the problems. He did not agree with the axiom that civil aviation must be left to fly by itself, and that the military side was in no way dependent upon the civil side. The military side, he submitted, depended entirely upon the civil side because civil machines were now convertible to a degree not considered possible five or six years ago. He thought the Secretary of State should have touched upon this problem and shown them that the proper balance between civil and military aviation was receiving constant and fresh consideration. He asked the House to consider whether we could be so proud of ourselves in regard to our civil aviation activities. The total number of our commercial machines was only 20, so we had not a very large foundation for that reserve which would be necessary if any of his premises were correct. They ought to compare their position in this respect with that of their neighbours. Capt. Guest then gave some comparisons of activities abroad, referring also to the Chicago-San Francisco day and night service. We were, he said, thoroughly behind in night flying. Regarding short-service system for officers, he was staggered to hear the Secretary of State say that this was a success, for he had heard many complaints in the last four years from short service officers who could not get a job at all. He suggested that the particular class of pilot which we needed for these reserves could be trained by paying Airways—or some other civil company—£1,000 a year to take a young man and train him for the purposes of commercial flying, but teaching him a certain number of other things in addition to those that the ordinary pilot would learn, and then give him a holiday. Then for three months he could go back to a service squadron, and that would be his reserve training. If that were done—presuming always that we developed the air routes—in less than three years we should have a method of keeping in permanent flying activity as large a reserve as we had now.

Lieut.-Col. Moore-Brabazon (Rochester, U.) asked why it was that, after the promise of the Chancellor of the Exchequer, some years ago, the House was still not allowed one day in which to debate the national expenditure on armaments in their entirety. They only had a certain amount of money to spend on defence and he thought the House had a right to discuss the whole question and see if the expenditure was wanted more for one service or another. He asked what had the Secretary of State done to advance the freedom of the air—the passage of our air services over foreign countries. This question, at all events for civil machines, should be taken in hand by some international body, say the League of Nations, so that the handicap on free transport was for ever freed. Regarding the aircraft trade in this country, he thought the Secretary of State should earmark a certain sum of money for the encouragement of those who invented new types of machines. Referring to metal construction, he suggested, in view of the limited supply of aluminium, we should concentrate on steel. He was glad to hear that the Secretary of State had got a "pendant" for flying-boats, and he asked him to look further ahead in this connection. He pleaded for larger flying-boats, big enough to weather a storm in the Atlantic. In regard to civil aviation, he thought the aeroplane could be used more in the way of developing those vast tracts of the Empire which at present were uninhabitable by white people owing to the lack of communications with the outside world.

Finally, he thought the Secretary of State should aim at putting this country at the head of the peace side of aviation, and he also begged to warn the right hon. gentleman against the technicians. What was wanted was more imagination, and the Secretary of State should get rid of the people who would stifle progress—and these had always been the technicians at the Air Ministry.

Mr. Rose (Aberdeen, N., Lab.) said while he was a great believer in the possibilities of aviation, and no one desired more than he did to see the component parts of the Empire brought closer together, he protested against the idea of linking up the Empire by that gold-beater's skin and gas bladder—the airship. Mr. Rose then proceeded, at some considerable length, to give numerous arguments against the Government airship policy and airships, referring to such matters as the Burney Airship Scheme, etc. He said he did not want to retard aviation progress or development, but thought these bubbles should be pricked before the monetary loss was magnified by the loss of precious and gallant human lives.

Mr. Buchan (Scottish Universities, U.) said he wished to add his congratulations to those which the right hon. Gentleman had received. During the year steady and enlightened progress had been made in the organisation of

the Service. As compared with the estimates last year, these estimates showed a greater absolute reduction than any other service, and a far greater proportion of reduction considering the amount of the sums involved. He could not help wondering, however, whether our defence problem was really being considered as a whole, or still in watertight compartments. We were spending annually £120,000,000 in defence. It was essential that the imperfect security for which we were paying a relatively high premium should cover all vital necessities. He hoped the day might come in his life time when the risk of war would be enormously diminished and ultimately cast away, but that day was not yet, and in the meantime we must prepare for possible war. Any war of the future would not be a mere bludgeoning thing, but would be directed towards the new centres of the opposing peoples. Yet the Home Defence Force had not been increased by one single squadron. Regarding flying-boats, the estimates provided for this class only two new units, and he would like to have seen at least four provided in a class the value of which had been so abundantly proved. In these circumstances he was bound to regard with a little disquiet the otherwise praiseworthy economy. He believed most firmly in a single unified Air Service, but he believed not less firmly in a single unified defence system under which the total expenditure would be allocated to the really vital objects, and which could be readily and economically contracted in the event of that limitation of armaments by international agreement to which he looked forward.

Rear-Admiral Sueter (Hertford, U.), after agreeing with the previous member's remarks, pointed out that the Air Force economised more than either of the two other Services. In connection with long-distance flights he said he thought the Air Ministry and the Aero Club ought to control the people who wanted to fly the Atlantic. People who wished to undertake that flight should be forced to produce a doctor's certificate, and the machines should be provided with fabric floating bags, kites, and wireless telegraphy.

Referring to Farnborough, he thought they were getting away with too much money and he again asked whether we were getting quite enough out of Farnborough in return. Regarding airships he said that the Air Minister and Lord Thomson were to be congratulated most warmly on taking up the airship experiment once more. Taking the Navy, Army and Air Estimates, together, he said it was shown that the Air Ministry got one-seventh of the total amount, which was far too little. The estimates for the fighting forces needed to be placed under a Defence Minister, so that he could go into them and allocate the money to each Service. We had 20 battleships which had little value and which it cost about £7,000,000 to keep in commission. The money would be better used to provide more cruisers and to help the Air Force.

Mr. L'Estrange Malone (Northampton, Lab.) said he thought the whole question of airships should be discussed to see if it was a sound policy or not. A mistake was made, in the past, by discontinuing work on airships and allowing all the experienced energies to be dissipated. If it had been pursued at that time, it was possible that we should to-day have an efficient airship service. But we had not got that, and we had to consider this whole question from the point of view as it is to-day and not as it might have been if we had done something 18 or 20 years ago. If the Air Minister wanted to run an air service to India he could use the £500,000 that was being wasted on airships and start an aeroplane service at once. Regarding civil aviation, he thought the Air Minister was dominated by the military mind.

Major Hills (Ripon, U.), said he did not believe the Air Minister was dominated by the military mind and he did not think civil aviation was in a bad way. He disagreed that the civil arm ought to be regarded as a reserve for the military side. He wanted to see the business of civil aviation developed as agency spreading all over the world, as it would be a great instrument for peace. We must get the industry going at all costs, and if necessary it must be subsidised. He did not wish to enter into the conflict between airship and aeroplane, but when airships start to carry passengers he would not go on the first journey. We ought to develop the flying-boat as much as we could.

Lieut.-Com. Kenworthy (Hull Cent.—Lab.), said the Air Ministry were neglecting the most vital need of the Empire to-day—Imperial air communication. He also did not see any real preparation by the Air Ministry to meet the menace of the air; and there was no adequate air defence of our principal shipping ports or merchant ships at sea. The thinking staff of the Air Ministry was weak.

Comm. Bellairs (Maidstone—U.), said, regarding civil aviation, it was extraordinary, after 10 years of the Air Ministry, that we had only 20 commercial aeroplanes. It showed that Great Britain was still behind other countries in this respect.

Mr. Barnes (East Ham S.—Lab.) moved that in view of the peril to civilisation latent in air warfare, the House regretted that the Government did not advocate bolder proposals for aerial disarmament at the meeting of the Preparatory Commission for the Disarmament Conference at Geneva. The Government were urged to take the initiative in putting forward a programme for the abolition of military and naval air forces, and the establishment of the international control of civil aviation. He moved his motion on three grounds—self-preservation, the disastrous economic consequences of mechanised warfare—and particularly aerial warfare—and the fact that warfare today affronts the higher moral sense of the community. The Labour Party felt that the development of civil aviation was of such a character that it was bound to be an auxiliary war service. They therefore considered that its control should be of an international character.

Sir P. Sassoon (Under-Secretary, Ministry of Air), replying to the debate, said that, if, so far as air service was concerned, we had not yet made any very great progress towards agreement with the Great Powers, that was certainly not the fault of this country. This country had set a striking example in the opposite direction with very little result so far as other countries were concerned. No other nation could produce figures of air reduction comparable with our own. We had today the most modest air programme of any first-class Power. No other country was more exposed than we were to the perils of air attack. It would be folly, therefore, to let our zeal for international peace, or our desire to be relieved of the burden of taxation, to outrun our discretion and leave this great country, with its crowded centres of population, at the mercy of air attack. Even assuming Russia's good faith in the matter of disarmament, it would not be possible for us to accept that offer unless all the other Great Powers were prepared to do the same. The suggestion that civil aviation should be put under an International Board of Control was one that no nation in the world would agree to. In the recent happenings in Southern Iraq we had had a demonstration of the impossibility and undesirability of schemes for complete and absolute disarmament in the inferior world in which we lived.

The amendment was defeated by 215 to 116, and the motion to go into Committee was agreed to.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

ANNUAL GENERAL MEETING

THE annual general meeting of the members of the Royal Aero Club of the United Kingdom will be held at 3, Clifford Street, London, W.1, on Wednesday, March 28, 1928, at 6 p.m.

Agenda

1. Chairman's Report.
2. To announce result of ballot for committee.
3. To elect President and Vice-President for the ensuing year.

The following are recommended by the Committee:—

President: Brig.-General the Duke of Atholl, K.T., G.C.V.O., D.S.O.

Vice-President: The Duke of Sutherland.

Ballot for Committee.—Ballot paper for the election of committee for the ensuing year is enclosed in the Notices to Members. The attention of members is drawn to the instructions set out on the ballot paper, which must be received at the Club in the accompanying envelope not later than 12 noon on Tuesday the 27th instant.

Aircraft Touring Abroad.—The Royal Aero Club, as the representatives of the Fédération Aéronautique Internationale in Great Britain, issues Customs Carnets for aircraft travelling abroad.

The Carnet enables the holder to travel without having to make payments for Customs dues on aircraft when arriving in a foreign country. The charge for the Carnet is £1 11s. 6d., and they are not restricted to members of the Club.

In making application for the Carnet, the following particulars must be supplied:—

1. Name and address of pilot.
2. Proposed date of departure from England.
3. Type of aircraft.
4. Registration mark.
5. Value of aircraft.
6. Weight empty.
7. Span.
8. Wing area.
9. Colour of aircraft.
10. Number of seats (including pilot's).
11. Type of engine.
12. Horse power.
13. Manufacturer's number.

Applications for Carnets are to be made to the Royal Aero Club, 3, Clifford Street, London, W.1.

COMMITTEE MEETING

A MEETING of the Committee of the Royal Aero Club was held on Wednesday, March 14, 1928, at 5 p.m.

Present: Lieut.-Col. Sir Francis K. McClean, A.F.C., in the chair; Air Vice-Marshal Sir Sefton Brancker, K.C.B., A.F.C.; Mr. Griffith Brewer; Lord Edward A. Grosvenor; Brig.-General Sir Capel Holden, K.C.B., F.R.S.; Mr. E. J. B. How; Mr. F. Handley Page; Maj. Henry Petre; Capt. C. B. Wilson. **In attendance:** H. E. Perrin, Secretary; B. Stevenson, Assistant Secretary.

Election of Members.—The following members were elected:—

Flying Officer Leslie William Cannon, Capt. Edward Keith Davies, Flight-Lieut. Guy George Houssemayne Duboulay, Flight-Lieut. Frank George Gibbons, Flying Officer Brendan John O'Connor-Hanstock, Pilot Officer Kenneth Evelyn Parker, Flying Officer Philip Edward Gerald

Sayer, Flying Officer Joseph Summers, Flying Officer Wilfrid Arthur Wadley, Flying Officer Terence Richard Wheatley, Henry Lees Buckley, Flying Officer Arthur Gabbetis Cooper, Flying Officer Alan Porteous McClare, John Wallis.

Aviators' Certificates.—The following aviators' certificates were granted:—

8207. John Harold Walton Wilcox, Nottingham Aero Club.
8208. James Charles Sleigh, Suffolk Aeroplane Club.
8209. John Swires Ellison, Yorkshire Aeroplane Club.
8210. Derek Arthur Rivers Cripps, Hampshire Aeroplane Club.
8211. Arthur Rowland Thomas Kirby, Hampshire Aeroplane Club.
8212. Henry Arthur Hallam, Nottingham Aero Club.
8213. Cyril Harry Sands, Nottingham Aero Club.
8214. Ronald Edwin Henry Caldecott, Lancashire Aero Club.
8215. Sydney Elmer Schofield, Suffolk Aeroplane Club.
8216. Henry Seely Whitby, Nottingham Aero Club.
8217. Walter Samuel Browning, Lancashire Aero Club.
8218. Charles Edward Cox, Nottingham Aero Club.
8219. Robert Anthony Blake, Nottingham Aero Club.
8220. Hugh Melvin Samuelson, London Aeroplane Club.
8221. Herbert Basil Goldwyer-Michelmores, London Aeroplane Club.
8222. Geoffrey William Hall, London Aeroplane Club.
8223. Gerald Martin Randall, Scottish Flying Club.
8224. Basil Cecil Gibaud, Bristol and Wessex Aeroplane Club.

Committee.—The following ten nominations for the nine vacancies on the Committee were reported:—

Air Vice-Marshal Sir W. S. Brancker, K.C.B., A.F.C.; Sir Alan J. Cobham, K.B.E., A.F.C.; Capt. R. J. Goodman Crouch, O.B.E.; Lord Edward A. Grosvenor; E. J. B. How; Col. F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.; Lieut.-Col. M. O'Gorman, C.B.; Maj. H. A. Petre, D.S.O., M.C.; Brig.-General Lord Thomson, P.C., C.B.E., D.S.O.

The Secretary was instructed to issue the necessary ballot papers.

President and Vice-President.—It was unanimously decided to recommend to the annual general meeting the re-election of the following: President: The Duke of Atholl. Vice-President: The Duke of Sutherland.

Britannia Trophy.—The Britannia Trophy for the year 1927 was unanimously awarded to Lieut. Richard Reid Bentley for his flight from London to Cape Town.

Lieut. Bentley on a D.H. "Moth," fitted with a Cirrus Mark II engine, left London on September 1, 1927, and arrived at Cape Town on September 28, 1927 having flown a distance of approximately 7,250 miles.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

Aircraft Touring Abroad

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6. Weight empty.
7. Span.
8. Wing area.
9. Colour of aircraft.
10. Number of seats (including pilot's).
11. Type of engine.
12. Horse-power.
13. Manufacturer's No.

Applications for Carnets are to be made to the Royal Aero Club, 3, Clifford Street, London, W. 1.

New U.S. National Balloon Race Trophy

A NEW National Balloon Race trophy, for competition in the United States, replaces the original trophy retired in 1927. It has been presented to the National Aeronautic Association of America by P. W. Litchfield, President of the Goodyear Tyre and Rubber Company and the Goodyear Zeppelin Corporation of America. The new trophy will be contested for initially in the 1928 national event, to be held early this summer. Mr. Litchfield was also the donor of the first American ballooning trophy. Rules for the second Litchfield trophy will correspond to those governing the first trophy.

Pilot Instructor Required

WE understand that the London Aeroplane Club, Stag Lane Aerodrome, requires the services of a pilot instructor. Applications should be made by letter to the Secretary of the Club, at 3, Clifford Street, London, W. 1.

THE BENDIX AERO WHEELS AND BRAKES

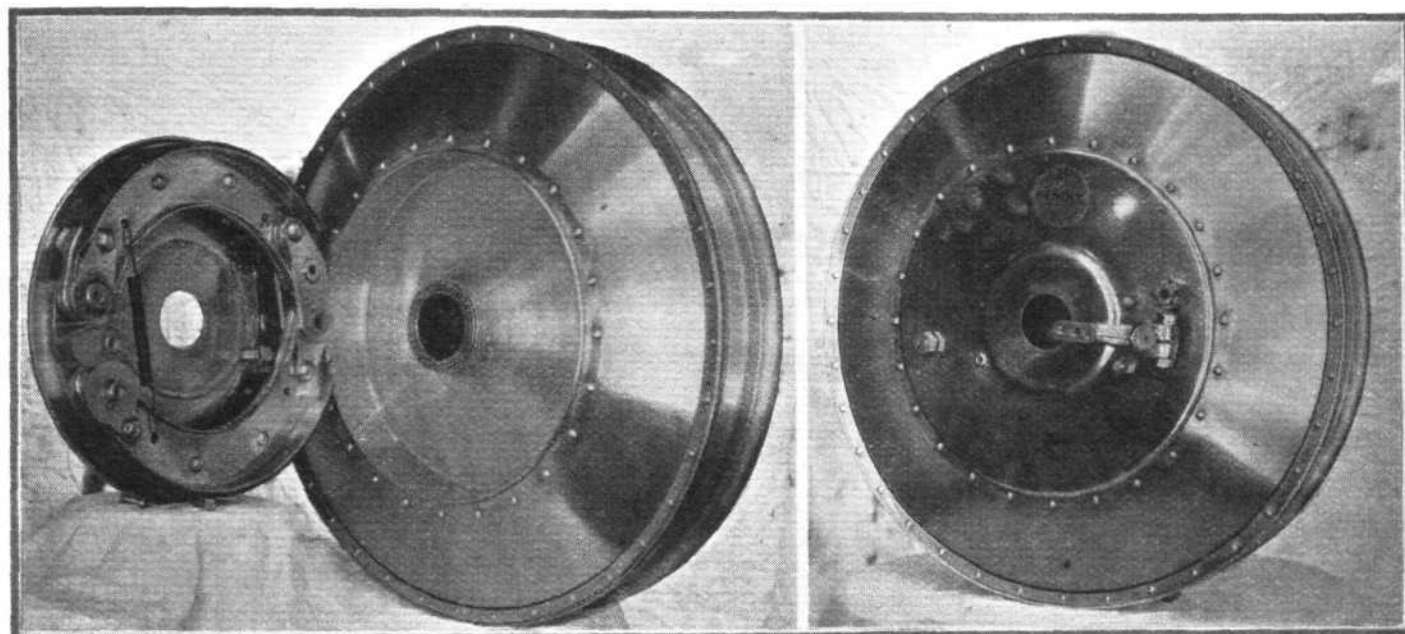
It is a somewhat peculiar fact that the aeroplane, perhaps the vehicle which is of all the most in need of brakes, has not until quite recently been seriously and with any success provided with wheel brakes. Brakes of sorts have been fitted on a great many aeroplanes in the past. As long ago as 1913 or so, it was quite customary for certain makes of German aeroplanes to be equipped with sprags, the function of which was to dig into the ground, thus exerting a braking action. Needless to say, this form of brake was not popular with aerodrome proprietors! Band brakes were also fitted, in this country, on several of the machines which took part in the Government competitions at Martlesham a few years after the war, but although several of them were quite effective, the fact that a too-sudden application would almost inevitably turn a machine on its nose was rather against them, and none came into general use.

Of recent years the subject of brakes has been revived. Not only so but wheel brakes for aircraft are without the slightest doubt come to stay. There is scarcely a type of

The accompanying photographs show one of the Bendix disc wheels fitted with the Bendix brake. It will be seen that the brake is of the expanding two-sector type, the operating cam and lever being visible in the photographs. We understand that the firm supplies either the wheels by themselves or the wheels complete with brakes. The brakes being self-energising, or "self-servo" mechanical brakes, if the expression may be permitted, they reduce, or do away with, the tendency to nose over, and they are reported to be smooth in action and to release immediately the applied pressure is removed.

Temporarily the firm has not, we understand, modified the wheels to suit British tyre sizes, but as this is a comparatively small modification, the following data should apply equally well to the modified wheels.

Following are the weights of four standard size wheels, the first figure giving the size of wheel in inches, the second the brake diameter, also in inches, the third and fourth the weight of plain wheel and wheel with brake respectively: 30 x 5;



AIRCRAFT BRAKES: Two views of a Bendix Aero Wheel and Brake. On the left, the brake sectors are shown removed from the casing, and on the right, in place. Note the operating lever.

landplane to which the fitting of effective brakes would not be an asset, and on some types they are becoming indispensable.

The problem of brake design for aircraft use is by no means a simple one, as those of our readers who have read Mr. G. H. Dowty's articles on the subject in our monthly technical supplement, *THE AIRCRAFT ENGINEER* will realise. There is, however, ample evidence in existence to show that the problem can be solved. The main requirements may be summed up as follows: Powerful braking action without the tendency to turn the machine on its nose, low weight, smooth action, simplicity to allow for easy renewal of wearing parts, and the possibility of using the two brakes either together or independently to enable a machine to be turned on the ground at speeds so low that the air rudder is ineffective.

At the moment, there is not, as far as we are aware, any British aero wheel brake on the market, but aero wheels suitable for the fitting of brakes, and the brakes themselves, of American origin, can now be obtained from Bendix-Perrot Brakes, Ltd., of 16, Bennett's Hill, Birmingham.

12; 13; 22. 32 x 6; 12; 21; 30. 36 x 8; 12; 22; 31. 44 x 10; 20; 36; 60. The 30 x 5 wheel has been found on test to withstand a radial load of 13,000 lb., and a side load of 4,000 lb. The 36 x 8 wheel withstands a radial load of 20,000 lb., and a side load of 6,150 lb.

The torque reaction figures for five standard wheels are as follows:

Tyre Size (in.)	Tyre Deflection (in.)	Capacity of Wheel (lb.)	Aero plane Weight (lb.)	Torque Reaction (inch-lb.)
30 x 5	1	11,000	3,200	12,300
32 x 6	1 1/4	18,000	5,000	20,300
36 x 8	1 3/4	18,000	9,000	40,250
44 x 10	2	30,000	14,000	77,000
54 x 12	2 1/2	50,000	20,000	135,000

The above values of torque reaction are based upon a braking effort of 0.55 times the weight on one wheel.

For further particulars application should be made to Bendix-Perrot Brakes, Ltd., at the address given above.



Above the Border

THE Scottish Flying Club informs us that in response to the numerous requests for another dance before the close of the dancing season, the committee has arranged another evening at the Waldorf on Friday, March 30. The previous club dances have been extremely well attended and thoroughly enjoyed, but all are determined to make this one an even greater success. The recently formed ladies' com-

mittee has wasted no time in getting to work, and has already found the means under the able and energetic chairmanship of Mrs. H. W. Smith, of augmenting the club funds by some £60. The attendance of members at the aerodrome at Renfrew, especially at week-ends has been astonishing, regardless of weather conditions, and it is significant of the spirit of the club to note how soon new members become brothers in the greatest free-masonry in the world—flying.

AIR ROUTES OF INDIA

ON March 9, Lieut.-Col. I. A. E. Edwards, C.M.G., Chief Technical Adviser, Department of Civil Aviation, lectured on "The Air Routes of India" at the Royal Society of Arts. Col. the Master of Sempill presided. Col. Edwards began his interesting and informative lecture by showing lantern slides to reveal a comparison between air routes in 1919 and those in existence to-day.

It was clearly seen that there were few places of importance in Europe which could not be reached by air to-day. Dealing with the main air lines which were likely to develop for linking up the Empire, he said that, working from north to south, there was an air line running from London to Berlin *via* Cologne with an extension to Moscow. It was regularly operated, and proposals were on foot to extend it farther across Siberia via the general line of the Trans-Siberian Railway to Vladivostok, with a branch to Peking.

There was a line from London to Cologne and on to Prague through the Balkan States to Constantinople, the section from Cologne to Prague not being in operation. Joining with this line was one *via* Paris and east to Prague, flown daily during the summer. An alternative route running partly over the same ground will possibly turn off at Belgrade and run down to Athens *via* Salonika, then continue eastwards *via* Rhodes and Cyprus to Haifa. There it will join with the Imperial Airways service now connecting Cairo and Basra, whilst a branch will run from Haifa to Egypt.

Two alternative routes from Athens may be followed, a northern one *via* Asia Minor to Aleppo, or a southerly one to Cairo *via* Crete. Coming still farther south, a line will probably run from London *via* Paris to Basle, Zurich and on to Milan, thence through Italy and across to Athens.

Another alternative will be for this route, instead of going to Athens, run south across the Mediterranean, either *via* Malta to Khoms, Benghazi and on to Egypt, or else from Italy to Benghazi direct, and then onwards.

While farther south there was the alternative route: London-Marseilles-Corsica-Naples-Athens—with an alternative from Marseilles *via* Corsica to Malta, where it would link with the route previously mentioned. Still farther south there was the possibility of a line from Marseilles running *via* the Balearic Isles to Algiers, then on to Tunis and along the North African Coast. Lastly, a line from London *via* the North coast of France and round Portugal to Gibraltar,

then eastwards along the North African coast, touching at Malta *en route*. The routes through Central Europe traversed bad weather regions, and those through the Mediterranean traversed good-weather regions. Political difficulties occur on some. The choice of the most suitable route was one of extreme perplexity, said Col. Edwards. In addition to the lines leaving Europe at a point between Turkey and Egypt, there was a further route *via* Moscow to Teheran and thence on to Bushire, which will also feed India.

To the east of India the main line would undoubtedly run from Calcutta to Rangoon, and, from an Imperial standpoint, on to Singapore and *via* the Dutch East Indies to Australia.

It was clear that of the two routes to the Far East—namely, that through Siberia and that entering India at Karachi, the latter would be the most important, since it would provide communication between England, India, Burma, the Malay Straits and Australia; between Holland and her valuable colonies, the Dutch East Indies; between France and Cochin China; and also between England and her large commercial interests in China. Japan was now about to institute regular air transport was another fact mentioned.

Space forbids the publication of all the interesting information contained in Col. Edwards' lecture. He dealt thoroughly with each aspect of his subject, turning from a description of the present and future air lines to the growth of future air traffic. He said that airships would be another factor in air transport. The airship would not rival the aeroplane, but co-operate with it. It would fly long stages. The first stop after leaving England would probably be in Egypt, and the next at Karachi. At these points the aeroplane would act as a collecting and distributing service.

Summarising part of his lecture, Col. Edwards said that the majority of the air traffic for the Far East would be concentrated at Karachi on one side of India, and at Calcutta on the other side.

He next traced the probable internal air routes in India, and said that as the external lines would stimulate external trade for the country, so internal air lines would do similarly for internal trade. In air transport, as in the majority of things, the difficulty was to make the start, but once services were operating over the main stages, it could confidently be anticipated that the linking up of remaining lines would be only a matter of a short time.

U.S. Air Operations in Nicaragua

UNITED States Marine aeroplanes, flying low, were fired upon, on March 19, with machine-guns and rifles near Murra, 30 miles north of El Chipote, Nicaragua. They replied with machine-gun fire and bombs. Capt. Francis Pierce, communications officer, was wounded in the foot, and his pilot, Sergt. Wodarczyk, escaped injury only because a bullet fired at him lodged in his parachute pack.

A special correspondent of the *New York Times* says that after dropping bombs this aeroplane and another returned to Ocotul for more aeroplanes with bombs. There were many more trips backwards and forwards during the day. From an authentic source not connected with the Marines, the correspondent learned that scouting aeroplanes had come upon several hundred of General Sandino's men crossing a large open space and had inflicted upon them probably the heaviest casualties since the fight at Ocotul last summer. Several aeroplanes were hit, one of them four times.

Singapore Air Base

The *Times*, March 21, gave these interesting particulars of the Singapore Base. The R.A.F. base at Seletar is situated 6 miles to the south-east of the naval base. Its main feature is the landing-ground, which will occupy an area of about 200 acres and which should be ready in about twelve months. Incidentally the completion of this landing-ground will remove from the island of Singapore one of its main reproaches—that of its failure to equip itself with any proper landing-ground for the numerous airmen who descend here. Singapore is bound from its geographical position to be one of the great air ports of the future, just as it is one of the world's great seaports to-day, and one cannot but feel that the local Government has hitherto shown itself remarkably indifferent towards this aspect of our city's future destiny. It is not known whether R.A.F. regulations will permit the use of the Seletar landing-ground by civilian flyers, and in any event it would be better if there was an aerodrome for civil airmen rather nearer to the city. The design of the base is both for landplanes and for seaplanes. Two aircraft sheds are to be

erected—steel structures, 250 ft. long with sliding doors at each end, giving a clear opening of 120 ft. by 30 ft. in height. The shed for the land machines will be near the landing-ground and the seaplane shed will be near the seaplane slipway on the beach. This was first brought into use when the R.A.F. Far East Flight arrived. Beginnings have been made with barracks to house 50 airmen, with officers' messes and so forth, and the most elaborate, extensive and successful anti-malarial works have been put into execution. Though there were no roads on the site when work was begun six months ago there are now over 1,000 yards of firm main roads, in addition to a large number of temporary roads. Municipal water is now available on the site. In the course of the clearing operations one hamadryad and two pythons were met with, besides a large number of black cobras, one of the latter having chosen the papers on the chief engineer's desk as a convenient resting place.

Commendation

WRITING to the de Havilland Aircraft Co., Ltd., Edgware, Middlesex, the West Australian Airways, Ltd., of Perth, W.A., says:—"You will be interested to know that we have just completed the first overhaul of our earliest D.H.50 machine which you supplied to us in 1924. This machine has completed over 1,700 hours (153,000 miles) without an overhaul, and we have carefully watched its progress and kept it under supervision, in order that no serious results would occur from such strenuous service. Upon stripping for the complete overhaul, a very small amount of work was required to put the machine in perfectly sound condition, and, apart from new cabin upholstery and other comparatively minor matters, the work has consisted mainly of cleaning up. Throughout the machine the plywood has kept in excellent condition, and the various components have functioned without the slightest trouble during its long career. When it is realised that this machine has flown the majority of its life in the tropics, we think that it reflects the greatest credit upon the design and workmanship, together with the materials employed by you in the construction of your machines."

PRIVATE FLYING

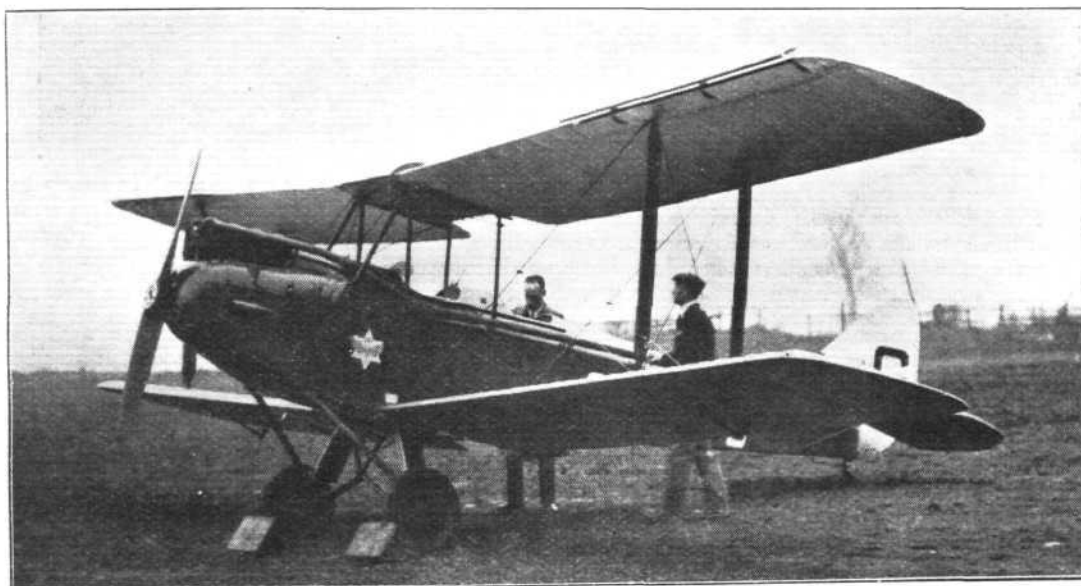
A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

THE "SLOTTED MOTH"

Captain G. de Havilland's Impressive Demonstration

REALISM was carried to a high degree of perfection at the demonstration given by Capt. Geoffrey de Havilland at Stag Lane on Monday of this week, March 19. It has been known for some time that the De Havilland Aircraft Co.

due, it should be repeated, not to the slots, nor to the "Moth," but to a slight error of judgment on the part of the pilot. (Capt. Broad's reputation is such that it is not likely to suffer from this statement.) At the time, Broad



Demonstrating a
"slotted Moth":
General view of
the machine.

"FLIGHT" Photograph

has been carrying out experiments with a "Moth" fitted with the Handley Page automatic wing-tip slots. As we recorded in **FLIGHT** some weeks ago, Capt. Broad had a bit of a crash while carrying out one of these experiments—

was deliberately imitating one of the worst faults committed by a beginner in flying, *i.e.*, making a climbing turn off the ground, and then cutting out his engine.

At Monday's demonstration Capt. de Havilland himself

The new type
of undercarriage
used for experi-
mental work on
slotted "Moths."

"FLIGHT" Photograph





["FLIGHT" Photograph]

A "MOTH" WITH AUTOMATIC SLOTS: Capt. Geoffrey de Havilland demonstrating a mistake often made by beginners: "Landing 10 ft. above the ground." Note that the elevators are hard up. In a normal machine a crash on a wing tip would almost certainly have followed. In this case the "Moth" merely bounced, and then settled quite comfortably.

took the joy stick and gave a demonstration of the kind of liberties which may be taken with a machine without serious consequences to the pilot if the machine is fitted with the new Handley Page slots.

The "Moth" had been but slightly altered from the standard machine. Small changes had been made in the control surfaces—since it is, of course, essential, if the best possible use is to be made of the slots, that all the controls should be in harmony. The chief alteration, however, was the substitution of a new undercarriage. One of our photographs shows this, and a lengthy description should not be necessary. It will be seen that the horizontal axle has been abandoned, the other alterations being due to this fact. What is not perhaps quite so obvious is that the wheel track has been made slightly wider and, most important of all, the stroke of the telescopic leg has been considerably increased in order to give better shock-absorbing qualities. The demonstrations proved that this was no unnecessary precaution.

Capt. de Havilland's demonstrations took the form of four separate flights, each made with the object of showing some particular function of the slotted-wing machine.

During the first flight Capt. de Havilland took the machine up to a couple of thousand feet, and then demonstrated

that the machine cannot be made to spin. Repeatedly he so manœuvred the machine that, had it not been fitted with slots, it would undoubtedly have gone into a spin. All that happened was that the "Moth" made some steep spirals at speeds and attitudes which were quite obviously far removed from the condition of autorotation.

In the second flight Capt. de Havilland repeatedly jerked the stick back violently so as to produce a fairly violent stall. There was not the slightest lateral "wobble" or uncertainty; but, of course, the machine stalled in the usual manner, *i.e.*, dropped its nose suddenly and commenced a dive, as any machine inevitably must which depends for its lift upon speed in some direction or other. The point was that merely a straight dive followed the stall, and not a sign of a spin. In landing from this flight Capt. de Havilland gave a demonstration of what happens when a beginner misjudges his height and lands, as it is called, "10 ft. above the ground," *i.e.*, flattens out to land while his wheels are still about 10 ft. in the air. A beautiful "three-point" landing was made "10 ft. up," but the machine, instead of dropping a wing tip as the normal machine would most likely do, the slotted "Moth" (by the way, we are afraid this machine will become known as the "Sloth" for short!), merely pancaked and bounced a little.

An unpremeditated, but very convincing demonstration: In doing a stalled landing from 200 ft., Capt. de Havilland proved the safety of the "Moth," fitted with automatic slots. The undercarriage was intact, but the impact was too much for the fuselage. It will be seen that both cockpits are practically undamaged, and even if a passenger had been carried it is unlikely that he would have been hurt.

["FLIGHT" Photograph]



The next demonstration consisted in landing exactly the reverse way, *i.e.*, "10 ft. below the ground"! In other words, a beginner may misjudge his height in two ways—he may think he is on the ground and "flatten out" too soon (as in the previous flight), or he may have the impression that he is not yet low enough, and may glide his machine into the ground. Flight No. 3 imitated the last-mentioned case. Capt. de Havilland (deliberately, of course) failed to "flatten out." The machine struck the ground at its gliding angle, its nose jerked upwards, a bounce with the nose in the air followed, and then, at practically no forward speed, the machine sank in a stalled condition, still without a sight of any tendency to drop a wing tip, and came to rest.

The fourth and last flight was a demonstration of stalling the machine from about 200 ft., without any power to flatten out (the height being assumed insufficient to permit of the dive which must precede the "unstalling" of the machine). During the large number of stalled landings of this nature made during the experiments with the slotted "Moth," it was found that the vertical rate of descent of the machine was in the neighbourhood of 9 ft. per second (a parachute drops at 15 to 17 ft. per second). On this occasion, for some reason which is not yet known, the "Moth" appeared to descend in a series of "steps," very slight but unmistakably present, of acceleration and deceleration. As luck would have it, the machine was just in one of its acceleration periods when it struck the ground. The result was that the rate of descent was more than the fuselage could stand. The cross member of the fuselage gave way, the undercarriage "legs" pushed upwards through the body, and the machine sat down flat on its belly. The front portion with the engine dropped forward, the rear portion of the fuselage dropped backward, but Capt. de Havilland was not scratched! Not only so, but he afterwards said he felt no particular shock, the whole proceedings being comparatively gentle. He was carrying no passenger at the time, but even if a passenger had been on board, it is extremely doubtful whether he would have been damaged at all. Both seats were intact, the aft cockpit entirely so, and the front cockpit damaged in such a way that a passenger would not be likely to have been hurt.

Very naturally, there was a moment's anxiety among the onlookers, until Captain de Havilland was seen to jump out of the machine and to be perfectly undamaged. The accident did undoubtedly prove that, although nobody would suggest, or try to encourage, careless handling of a machine, the consequences of what is after all a comparatively trivial mistake, are not likely to be very serious in a machine fitted with automatic slots and with a good undercarriage. The next step in the evolution of the "Sloth" will probably be a redesigning of the part of the fuselage in the neighbourhood of the undercarriage. In this case the undercarriage itself

was entirely undamaged, it was the fuselage which gave way. This is not surprising, as it had not been specially designed for shocks such as it received.

The demonstration undoubtedly proved that the automatic slots, properly designed, and with the rest of the machine designed to be in harmony, has greatly reduced the seriousness of the consequences following upon mistakes in piloting. Nobody would claim that the slots make a machine "fool-proof." The four-wheel brakes on a motor car go a long way towards facilitating the handling of a car, in that reasonable errors of judgment in the matter of speed and distance can be corrected by means of the brakes. But the brakes do not make a car "fool-proof." A driver can still, if he is fool enough to do so, drive straight into a brick wall.

So also with the automatic slots. The fitting of these does not, for instance, prevent a machine from stalling. But the slots do prevent the common result of stalling: the spin, from which there is no way of getting out, except by diving. Put in a different way, the ordinary "Moth" (to keep to this machine) can be stalled down, just as is the slotted "Moth," but, and that is the great point, *it takes a very skilled pilot to prevent it from dropping a wing tip.* It is, so to speak, balanced on a knife's edge laterally. With the slots, however, it is laterally stable in the stalled condition, and consequently the high degree of skill in preventing a wing tip from dropping is no longer necessary.

Hitherto, if one may use the simile, there has been no punishment to fit the crime! The trivial error of getting into a stall has only too frequently resulted in the pilot losing his life. The introduction of the automatic slot will, we firmly believe, in the vast majority of cases, reduce the "penalty" to nothing worse than a damaged machine, and probably very rarely even this.

And, finally, we cannot conclude these notes without paying a tribute to Captain de Havilland for the practical and personal way in which he interests himself in aviation. We know that he habitually flies every new type of machine produced by his firm. That he should have been willing to give a demonstration like that on Monday last, is one more proof of his very great keenness and courage, for we maintain that it takes a great deal of courage to make the "mistakes" which "D.H." deliberately made. For a skilled pilot to make up his mind to stall into the ground, a procedure against which all his instincts as a pilot rebel, must take a tremendous amount of will power. When that same pilot is, in addition, a trained engineer and a world-famous aircraft designer, with a full technical knowledge of all that is happening, the performance is even more remarkable.

A spectator asked the writer who the pilot was, and on being told, exclaimed "Oh, young de Havilland!" In view of the fact that "D.H." has been flying since 1909, the remark is rather significant.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.

Bristol and Wessex Aeroplane Club, Filton, Gloucester. Secretary, Capt. C. F. G. Crawford, Filton Aerodrome, Patchway.

Hampshire Aero Club, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.

Lancashire Aero Club, Woodford, Lancs. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.

Midland Aero Club, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

Newcastle-on-Tyne Aero Club, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.

Norfolk and Norwich Aero Club, Mousehold, Norwich. Manager, F. Gough, The Aerodrome, Mousehold, Norwich.

Nottingham Aero Club, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.

The Scottish Flying Club, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.

Southern Aero Club, Shoreham, Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.

Suffolk Aeroplane Club, Ipswich. Secretary, Courtney N. Prentice, "Hazeldeil," Stowmarket, Suffolk.

Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

LONDON AEROPLANE CLUB

REPORT for week ending March 18.—Total flying time, 21 hrs. 20 mins. Dual instruction, 13 hrs. 35 mins.; solo flying, 7 hrs. 45 mins.

Dual Instruction.—(With Capt. F. G. M. Sparks): G. Black, Mrs. Fraser, A. O. Wigzell, D. S. Schreiber, A. P. Glenney, Miss H. Cholmondeley, Miss Fletcher, R. Ward, Miss Wilson, F. C. Fisher. (With F. R. Matthews): A. O. Wigzell, J. A. Crane, Dr. Cook, Mrs. Cook, L. Rowson, H. Lane, S. Hansel.

Solo Flying.—R. Sanders Clark, C. E. Murrell, H. B. Michelmore, P. Hoare, H. M. Samuelson, W. L. M. O'Connor, O. J. Tapper, Lord Douglas-Hamilton, B. B. Tucker, K. V. Wright, J. A. Brewster, J. H. Saffery, G. C. Bonner, H. Solomon.

Passenger Flights.—(With Capt. Sparks): N. F. Shelley. (With A. R. Ogston): E. G. Denton.

Flying at Stag Lane on Friday and Saturday was curtailed on account of the R.A.F. display at Hendon before the King of Afghanistan.

Presentation to Capt. F. G. M. Sparks.

Capt. Sparks is giving up his post as chief pilot instructor of the club early in April, having accepted a lucrative appointment in Canada.

Capt. Sparks has been the chief pilot instructor of the club since it started,

and it is no exaggeration to say that he has turned out more pupils than any other club instructor. Capt. Sparks is a great favourite with all the members, and his departure will be keenly felt.

In view of the very valuable services rendered to the club by Capt. Sparks, the committee think that the members would wish a presentation to be made to him, before his departure, as a mark of their appreciation of his efforts on behalf of the club. It has therefore been decided to invite donations, limited to 10s., and members wishing to subscribe to the presentation are requested to communicate with the Secretary of the London Aeroplane Club, 3, Clifford Street, London, W.1.

Capt. S. L. F. St. Barbe has been granted three weeks' leave to enable him to carry out a flight to Constantinople and back. During his absence the club have secured the services of Mr. F. R. Matthews.

Visit of the King of Afghanistan to Croydon.—In response to the invitation of the Air Council, the club will send three D.H. "Moths" to Croydon on Wednesday, the 21st instant, in charge of Capt. F. G. M. Sparks. The club will be represented by the following members:—

Mr. O. J. Tapper, Mr. F. R. Matthews, Miss Winifred Spooner and Mr. H. Sutton.

In addition to the three club machines, the following members will also attend in their privately-owned "Moths":—

Mr. G. R. Merton, Mr. N. H. Jones and Capt. S. J. Burt.

BRISTOL & WESSEX AEROPLANE CLUB

REPORT for week ending March 17.—Total flying time, 17 hrs. 25 min. Instruction, 9 hrs. 25 mins.; solo, 5 hrs. 50 mins.; passengers, 2 hrs. 10 mins. Cross-country flights.—Mr. Downes-Shaw and Mr. Jopp, to Yelverton; Mr. Hopper and Mr. Roberts, to Yeovil.

Instruction.—(With Mr. Bartlett): Messrs. Newman, B. L. Bathurst, T. H. Clarke, Kennan, Maj. Hume, Messrs. Girdlestone, Tanner, Garrett, and Downes-Shaw. (With Mr. Tratman): Mr. Walwin.

Soloists.—Messrs. Clarke and Arnold.

"A" Pilots.—Messrs. Jopp, H. C. H. Bathurst, Tratman, and Downes-Shaw.

Passengers.—(With Mr. Hopper): Mr. Roberts. (With Mr. C. S. Clarke): Mrs. David.

Mr. Downes-Shaw flew to Yelverton with Mr. Jopp and returned in the afternoon. Mr. Hopper took Mr. Roberts with him to Yeovil where they stayed the night. Both journeys were made through snow showers. We hope that members of other clubs will attend the pageant on May 5. R.Ae.C. and affiliated club members will be admitted free on production of official badge.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending March 18.—Flying time, 26 hrs. 30 mins. Solo, 9 hrs. 10 mins. Dual, 13 hrs. 25 mins. Passenger flights, 2 hrs. 55 mins. Tests, 1 hr.

Instruction (with Flight-Lieut. Swoffer), 20. Soloists, 10. Passengers (with Flight-Lieut. Swoffer), 4. Passengers (with Capt. Kirby), 1.

Mr. Richardson carried out his first solo on Tuesday, and made further successful flights on Wednesday and Thursday.

Mr. Baynes successfully carried out all his tests on Saturday for his "A" licence.

LANCASHIRE AERO CLUB

REPORT for week ending March 17.—Flying time, 16 hrs. 40 mins. Instruction, 11 hrs. 20 mins. Solo flights, 3 hrs. 10 mins. Passenger flights, 1 hr. 20 mins. Tests, 50 mins.

Instruction (with Mr. Baker): Messrs. Cohen, Stross, Harber, Eills, Tweedale, Benson, Nelson, Harrison, Mills, Gort, Slack, Watson, Allott, Taylor, Weale, Haveson, Crosthwaite, Michelson, Miss Hill, Miss Emery; (with Mr. Cantrell): Messrs. Brookings and Weale.

Soloists (under instruction): Messrs. Hall, Gort, and Cohen.

Pilots: Messrs. Twemlow and Lacayo.

Passengers (with Mr. Goodfellow): Mr. Mills; (with Mr. Twemlow): Mr. Holden; (with Mr. Baker): Miss Briggs, Messrs. Ayre, Watson, Lefroy, Belcher, and Chirneck.

Stormy weather. "Q L" still out of action, but will be back this week. "O K" the Renault Avro is on sale; several offers have been received, and she will probably be sold this week and replaced by another Avian.

MIDLAND AERO CLUB LIMITED

REPORT for week ending March 10.—Total flying time, 15 hrs. 29 mins. Dual instruction (with Flight-Lieut. Rose, D.F.C.): E. P. Lane, H. Beamish, G. Aldridge, O. L. Richards, E. D. Wynn, R. L. Brinton, J. H. Baker, G. Robson.

Solo: R. D. Bednell, R. L. Brinton, W. Swann, S. H. Smith, C. W. Fellowes, E. D. Wynn, H. J. Willis, J. Rowley, E. R. King.

Passengers: A. Harley, Miss Brighton, L.A.T. Gundle, E. M. Kerr, L. V. Mann, E. J. Radway, Mrs. Harley, R. Aspinall, S. H. Smith, J. H. Moore, T. W. Wild.

On Sunday Mr. E. D. Wynn was launched solo and put up a very good performance.

Despite the prevalence of fog which rendered flying impossible until 11 a.m., 10 hrs. 44 mins. was put in by the two "Moths" during the day, which constitutes a club record, but which we hope to considerably exceed during the summer.

Messrs. Bartlett and Bathurst of the Bristol Club recently paid us a visit.

REPORT for week ending March 17.—Total flying time, 15 hrs. 55 mins. Dual instruction (with Flight-Lieut. Rose, D.F.C.): G. Aldridge, O. L. Richards, G. Robson, H. Tipper, S. Duckitt, E. D. Wynn, J. R. H. Baker, A. B. Gibbons, H. Beamish.

Solo: R. L. Jackson, C. W. Fellowes, R. D. Bednell, W. Swann, G. Robson, S. H. Smith, E. D. Wynn.

Passengers: J. F. Tipper, J. S. Hathaway, W. Morris, J. H. Moore, V. M. Parsons, H. M. Williams, P. H. H. Baker.

Despite a strong wind and snowstorms we managed to put in nearly five hours' flying on Sunday.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending March 18.—Total flying time, 10 hrs. 40 mins. Dual instruction, 1 hr. 45 mins. Solo, training, 25 mins. "A" pilots, 5 hrs. Tests, 1 hr. Passengers, 2 hrs. 30 mins.

Instruction (with Mr. Parkinson): Messrs. Runciman, Horn, Welch.

Solo training: Dr. Alderson.

"A" pilots: Mrs. Heslop, Messrs. N. S. Todd, A. Bell, R. N. Thompson, F. L. Turnbull, C. Thompson, R. M. Stobie.

The snowstorm of last week stopped all flying (and road traffic, too, in the district), the machines not leaving the hangars except for some tests for weather and about an hour's flying on Friday. All the rest for the week being carried out on Sunday, when it was clear but rather too windy for all but the more experienced pilots.

NORFOLK & NORWICH AERO CLUB

REPORT for the week ending March 18.—Total flying time, 13 hrs.

Instruction (with Mr. F. Fry): Messrs. Marshall, A. J. K. Finch, G. Barker, E. Lambert.

Soloists: Messrs. N. Brett, H. Mack, R. F. Potter, H. Pank, R. T. Harmer, W. P. Cubitt, G. Surtees, F. Gough.

Number of Passengers: Twelve.

A special meeting of the Directors was held at the Royal Hotel, Norwich, on Wednesday the 14th inst. to consider a report presented by Mr. C. R. Bignold (ex Lord Mayor, and Joint Member of the Club) and Capt. Russell Harmer. These two gentlemen collaborating with Mr. F. Gough (temporary Hon. Manager), carefully investigated the whole position of the Club, past, present, and future, resulting in a concise but clear report.

The representatives accepted, confirmed and passed in its entirety. Mr. F. Gough was appointed Hon. Managing Director for twelve months, and a special Managing Committee, consisting of Messrs. H. Cator, W. A. Ramsay, R. Harmer, W. P. Cubitt and F. Gough, was appointed, being given exceptionally complete power in all matters whatsoever. All other committees were disbanded.

Mr. G. McEwen who has recently been in charge of the Aerodrome Office was appointed Club Secretary and one wishes him every success. Apart from the Manager we now have a completely paid staff, and the club has at last got a businesslike atmosphere about it.

NOTTINGHAM AERO CLUB

REPORT for week ending March 9.—Total flying time, 4 hrs. 45 mins. Dual, 2 hrs 25 mins. Solo ("A" licence), 10 mins. Solo (under instruction), 1 hr. 10 mins. Passenger, 50 mins. Tests, 10 mins.

Passengers (with Mr. Martin): Messrs. J. Granger, E. Linney, Barber, and K. Blake. (With Mr. Hallam): Mr. Kay.

Dual (with Mr. Martin): Messrs. F. Granger, A. G. Calladine and B. Pilgrim.

Solo ("A" licence): Mr. Hallam. Solo (under instruction): Messrs. Cox, Blake, Pilgrim and Booth.

We are rather down the course this week with our time, but the fact is our Moth went to ground in a hedge (no names, no pack drill!) on Sunday last, and has had to go to D.H.'s for two new bottom planes. Meanwhile D.H.'s, with their usual courtesy, have lent us one to carry on with. Bob Blake and C. Cox have got their "A's." The former is our first "ab initio," and we are sure proud of him, if it were not for some of his nasty habits any club would be happy to own him!

REPORT for week ending March 16.—Total flying time, 12 hrs. 10 mins. Total Dual time: 3 hrs. 55 mins. Total Solo ("A" licence): 2 hrs. 30 mins. Total Solo (under instruction): 20 mins. Total Passenger Time: 4 hrs. 45 mins. Total Tests: 40 mins.

Passengers (with Mr. Martin): Miss Allardye and Messrs. Mural (Aero Films), Hopewell, Barton, Hayburn, Davidson, Morris, Holmes, Lucas and Foster.

Dual (with Mr. Martin): Messrs. Hancock, S. Granger, Ashworth and Glenn. Solo ("A" Licence): Messrs. Blake, Sands, Cox, Paul, Ball and Wilcox.

Solo (under instruction): Messrs. Coles and Granger.

Sunday, usually our best day, was spoiled by snow. Our latest soloist, Granger Senior, put up a very good show, his landings being specially noteworthy. He has been connected for some years with a local experimental light aeroplane club and although he has never piloted before it is in his blood.

SUFFOLK AEROPLANE CLUB

REPORT for week ending March 19.—Flying time, 8 hrs. 15 mins.

Instruction (with Mr. Lowdell): Miss Edwards, Miss Creasy, Dr. Dunn, Messrs. R. Brown, F. Jolly, C. Hanson, H. Billinton, T. Marriage, F. Verney, G. Smith.

Soloists.—Dr. Jas. Sleight, Messrs. H. Billinton, S. Schofield, R. Brown, F. Jolly, C. N. Prentice.

"ON TO HADLEIGH RALLY"

All aircraft arriving at Hadleigh Aerodrome on the morning of Easter Sunday, April 8, for the purpose of taking part in the Air Display on Easter Sunday and Monday, organised by the Suffolk Aeroplane Club, will be regarded as competing in the "On To Hadleigh Rally."

This must not be regarded as an air race in the true sense of the word, but rather the prizes—£10 first, £7 10s. second, and £5 third, must be regarded as a bonus given by the Club to competitors in return for their assistance at the Display, while at the same time it will add a certain element of sport to the arrival of visiting aircraft.

Pilots who have been at Lympe on Good Friday and Saturday for the Cinque Ports Meeting, are invited to make a race between themselves, while competing in the general Rally.

The prizes will be awarded to the pilots who obtain the highest number of marks based on a simple handicap formula, which takes the distance flown in a straight line from a named point of departure to Hadleigh as a basis.

Zero hour will be 11.30 a.m. The distance in miles flown will be divided by the number of minutes before or after aero hour that pilots cross the finishing line on the Aerodrome in flight. The result of this calculation will be the marks obtained by each pilot. If two pilots tie, the one who has made the longest flight will be the winner. In the event of a dead-heat by two pilots who have covered an equal distance, first and second, or second and third prizes, will be divided as the case may be.

Any pilot observed to be cruising about in the vicinity of the Aerodrome will be disqualified.

Thus, pilots flying to Hadleigh from all parts of England have an equal chance of sharing in the bonus, and all types of aircraft may compete.

Entries stating point of departure, Registration mark of machine and the intention to take part in the Display on Easter Sunday and Monday should be forwarded as early as possible so as to reach the Hon. Secretary of the Suffolk Aeroplane Club, not later than March 31.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending March 17.—Flying time, 5 hrs. 35 mins.; instruction, 3 hrs. 40 mins.; soloists, 1 hr. 55 mins.

Instruction (with Captain Beck): Messrs. Clayton, Collins, Cooke, Crowther, A. Lax, R. K., Ostler, Thompson, G.

Soloists.—Messrs. Clayton and Lister.

"A" Pilots.—Mr. I. Thomson.

FROM THE FLYING SCHOOLS

The De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending March 18.—Total flying hours, 76 hrs. 40 mins.; instruction: Dual, 24 hrs. 45 mins.; solo, 36 hrs. 10 mins.; other flying, 15 hrs. 45 mins.

During the week the activities of the School have been somewhat increased, although on Friday and Saturday, the R.A.F. display for the benefit of the King of Afghanistan, somewhat interfered with the normal routine.

Six new "Moths" were tested during the week and one set out on its delivery flight to Italy.

Henderson Flying School, Brooklands Aerodrome

REPORT for week ending, March 14.—Total flying, 20 hrs. 15 mins.; dual, 12 hrs.; solo, 8 hrs. 55 mins.

Dual (with Mr. H. D. Davis): Messrs. McCabe, Habsburg, Colonel Rice, Lattey, Liniker, Dr. Wall, Dr. Forcye, Hamilton, Hill, Whitard.

Solo: Dr. Wall, Lattey, Hill, Anderson, Hamilton, Liniker, Crabtree and Jonassen.

Messrs. Anderson, Crabtree, Liniker, are now flying A.S. from the front seat.

On Tuesday, Mr. McCabe had engine failure, owing to a broken inlet valve. He put up a very good show and landed his machine side-wind.

Mr. Hamilton was launched "solo" after 3 hrs. 15 mins. Dual Mr. Lattey has now completed the air tests for his R.A.C. licence, making five tickets since January 1, 1928.

AIRISMS FROM THE FOUR WINDS

The Atlantic Flight Mystery

VERY little hope is now entertained of the safety of Capt. W. R. Hinchliffe and the Hon. Elsie Mackay, who left Cranwell, Lincolnshire, on March 13, in a Stinson monoplane (Wright "Whirlwind" engine) for an unknown destination. Certain details suggest that they attempted to cross the Atlantic, but the evidence is very slender. The machine was reported seen 170 miles off the west coast of Ireland on the same afternoon, and the Atlantic crossing had been mentioned as one intention of Capt. Hinchliffe's, but mystery pervaded the entire venture, and ended in a climax, when it was not certain at first as to whether his companion was Miss Mackay or Mr. G. Sinclair. The latter revealed himself after remaining low for a few days, and thus left no doubt in this direction. It seems that Miss Mackay financed the flight, including the purchase of the machine, and that much of the mystery was instigated by her in order to spare her parents, Lord and Lady Inchcape, from anxiety. Capt. Hinchliffe was the former Imperial Airways pilot, and had been flying for many years. Miss Mackay learned to fly at Stag Lane a few years ago.

R.A.F. African Flight

AIR VICE-MARSHAL WEBB-BOWEN's machine crashed at Ndola, on March 16, in the course of the R.A.F. service flight from Cairo to Cape Town and back. The machine was badly damaged, but no one was injured. Two mechanics were left behind to take charge whilst the other three machines continued south, and reached Bulawayo on March 19.

Great African Survey Flight

SIR ALAN COBHAM cabled to Rolls-Royce, Ltd., as follows:—"Arrived Durban. Congratulations and thanks on superb performance of the two Rolls-Royce Condor engines fitted in our Short metal flying boat. Engines have just completed 150 hrs. without overhaul on flight through Central Africa, and despite the varying climatic conditions such as heat of the Sudan and thin atmosphere of high altitude lakes, have run without falter. Since we left Rochester we are all confident and happy in the reliability of the Condors for the return flight home via the West Coast.—COBHAM."

South African Aviation

AN African Airways Company is expected to be registered in a few days with, possibly, Sir Alan Cobham, on the board of directors. Three D.H. "Moths" of special design will probably be used for transporting gold from Rhodesia to the Rand, and the pilots will be armed. A Rand-Durban air service is also suggested in which Sir Alan Cobham will co-operate with Major Miller, who is forming the African Airways Company. In November next a bi-weekly service between Johannesburg and Cape Town will be opened. The flight will take nine hours, with one stop. It will serve passengers landing from liners at Cape Town on Monday mornings and convey them to Johannesburg by 5 p.m. The Union Castle Line will co-operate and the machine used will be a three-engined biplane piloted exclusively by Lieut.-Col. Henderson. Fares will be £15 each way single and £27 10s. return. A public company may result from a success of the line. Sir Alan Cobham is at present making a rapid air tour of Rhodesia in a D.H. "Moth."

Flight-Lieut. Kinkead

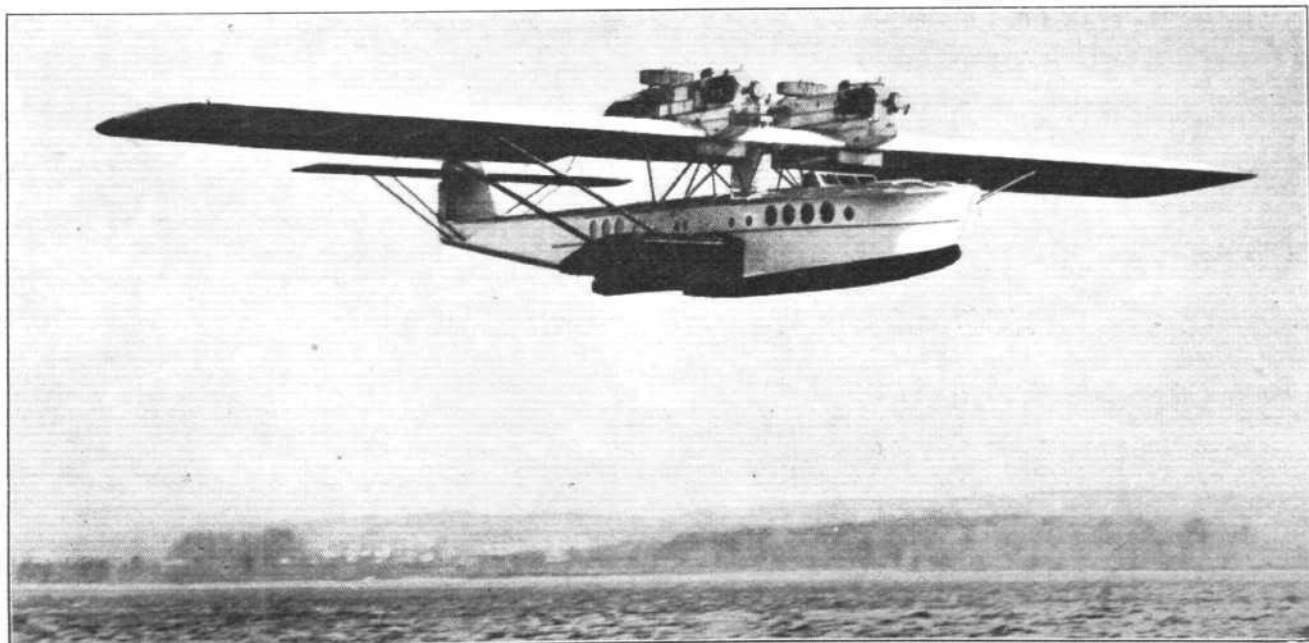
THE inquest on Flight-Lieut. S. M. Kinkead was opened on March 14, at Calshot, and an official Court of Inquiry began its sitting at Calshot the day before. It was suggested at the inquest that he might have been poisoned by fumes. It was said that he was not drowned. Tests are being made to ascertain the true cause of death if possible. Flight-Lieut. Kinkead was buried with full military honours at Fawley, on March 16. Representatives of the Air Ministry, Royal Air Force, and of the Army and Navy were present.

Second Attempt upon Speed Record

DURING a lecture on high-speed aircraft at the Royal United Service Institute on March 16, given by Major J. S. Buchanan, the chairman, Air Vice-Marshal Sir John Higgins, hinted that another attempt to secure the world's speed record would soon be made.

Antarctic Air Expedition

COMMANDER BYRD, who flew the Atlantic last year, has invited Dr. L. D. Livingstone, an experienced Canadian explorer, and Inspector Joy, of the Royal Canadian Mounted



A NEW DORNIER SUPER-WAL: Our picture shows a new all-metal Super-Wal flying-boat, fitted with four British Napier "Lion" engines, which recently carried out successful flying tests over Lake Constance. In addition to 20 passengers, this machine carries a crew of three, and with a full load of 12 tons it has a top speed of 125 m.p.h.; it has a cruising speed of over 105 m.p.h.

Police, with twenty years' service in the Arctic region, to join his expedition to the Antarctic.

Proposed Atlantic Ventures

CAPT. KOHL, a German pilot, is preparing for an attempt on the Atlantic from East to West. He visited Ireland recently, accompanied by a German baron, who may be his passenger on the flight, to inspect possible sites for taking off with a heavily-loaded machine. It is reported that the secretary of the Aero Club of Belgium is sailing to America to arrange final details of the air race to take place between America and Ostend, for which six pilots have already entered. France is also preparing. A three-engined monoplane will be ready shortly. M. Drouhin, pilot, M. Couzinet, designer, a navigator, mechanic and wireless operator will comprise the crew. The machine will have a wing span of 90 ft., and the estimated performance is 124 m.p.h. for fifty hours' non-stop flight.

Germany's New Zeppelin

DR. ECKENER's airship, the LZ 127, is rapidly nearing completion at Friedrichshafen, Germany. He hopes to make test flights over Germany during the early summer to show the public the result of their joint subscriptions by which the ship is partly being constructed. Future plans are uncertain, but it is suggested that one voyage to be undertaken will be to Tokio, which has a good shed, and then on to America, where San Diego can offer adequate landing facilities.

Australian Flight Completed

CAPT. LANCASTER and Mrs. Keith Miller have completed their flight from England to Australia in the Avro "Avian," named the "Red Rose." They left Croydon on October 14, and their flight as far as Singapore was given in full detail with a map, in *FLIGHT*, January 19, 1928. They were held up whilst repairs were being made to their machine, which had crashed at Muntok. The flight was resumed on March 12 to Muntok, Weltevreden, on March 14, then Sourabaya, on March 15, and Bima, in the Dutch East Indies, on March 16. On March 19, the sea crossing of 550 miles from Kupang to Port Darwin, was flown, and the landing made at 2.30 p.m. They were not expected and consequently no one was present to welcome them. It was their intention to remain at Port Darwin a few days, whilst overhauling their machine. On continuing the route to the south, they will follow that taken by Mr. "Bert" Hinkler. Mrs. Keith Miller is the first woman to fly from England to Australia and fly over 13,000 miles.

Lady Bailey's Flight

SINCE leaving England, on March 9, on her lone flight towards the Cape, Lady Bailey has made steady progress in her D.H. "Moth." She arrived at Pisa from Marseilles, on March 12, and Naples on March 13. The next day Catania in Sicily, was reached, and after a flight of 115 miles, on March 15, Lady Bailey descended at Malta. The sea trip across to the North African Coast was successfully flown on March 16, then resumed to Tripoli after refuelling at Khoms, Aboukir was the next stage, March 18, and Cairo, March 19.

Hinkler's Tour of Triumph

AUSTRALIA is still paying homage to its popular hero, Mr. Hinkler. At Melbourne, where he arrived on March 18, a crowd estimated at 60,000, welcomed him in brilliant sunshine. Mr. Hogan, the Victorian Premier, and Mr. Morell, the Lord Mayor, officially greeted him. He told questioners that on his historic flight from England he used maps torn from *The Times Atlas*. He will remain in Melbourne a week and be the guest at many functions. It is his intention to fly to Perth after visiting Adelaide to meet his wife on her arrival from England, about April 1. Mrs. Hinkler will then fly with him on a return flight to Melbourne.

The African Tourists

LIEUT. BENTLEY and his wife reached Nairobi on March 14 in his D.H. "Moth," accompanied by Lady Heath in her Avro "Avian." The former are flying to England for their honeymoon, according to some reports.

Air Survey

THE Aircraft Operating Company has secured a contract in face of severe international competition, for a detailed survey of the City of Rio de Janeiro and the locality.

Twenty Years Ago!

Extract from "The Auto." (Precursor of "Flight"), Mar. 21, 1908.

"Two Simultaneous Flights."—In the present embryonic stage of free flight, it is a matter of interest that two machines should have succeeded in simultaneously flying in the air while practising on the same trial ground. This happened to be the case on Saturday last, at Issy-les-Moulineaux, for while Mr. Henry Farman was in the air on his No. 1 machine, M. Delagrangue succeeded also in rising with his similar aeroplane, and executed a flight of over 600 yards. Mr. Farman, during the day, made several successful flights, and once completed a circular course of considerably over a kilom. in length."

IN PARLIAMENT

Cadet College (Dominion Entrants)

MR. J. BAKER asked the Secretary of State for Air the number of cadets who have entered the Royal Air Force Cadet College at Cranwell from the separate Dominions during each of the last three years?

SIR S. HOARE: The answer is: none in 1925; one Australian and one New Zealand cadet in 1926; one Australian and one Canadian cadet in 1927.

Commercial Aircraft (Conversion for War)

MR. WELLOCK asked the Secretary of State for Air what approximately would be the cost of converting a commercial aeroplane as compared with the cost of one fully equipped for fighting purposes?

SIR S. HOARE: An ordinary commercial aircraft could be adapted to carry bombs for a comparatively small sum, but unless it were extensively reconstructed at considerable cost it would not be of great service against an organised defence.

Foreign Persons, Training

MR. DENNISON asked the Secretary of State for Air whether any persons of foreign nationality have received training in the Royal Air Force during the last five years; and, if so, whether he will give figures showing the number under training each year and the nationality of the persons so trained?

SIR S. HOARE: The following return gives the information requested:—

Persons of Foreign Nationality Trained in the Royal Air Force					
Country	1923	1924	1925	1926	1927
Greece	—	—	2	5	—
Holland	—	—	—	1	—
Spain	2	—	—	—	2
Japan	—	—	—	—	1
Finland	—	—	—	2	—
Sweden	—	—	—	—	1
Siam	—	2	—	—	—
Chile	—	—	—	4	—
Denmark	—	—	—	—	1
Iraq	—	—	—	—	6
Czechoslovakia ..	—	—	—	—	1
Bolivia	—	—	—	—	1

British Forces

MR. DENNISON asked the Under-Secretary of State for India the number of officers, non-commissioned officers, and men employed by or loaned to the Army and Royal Air Force establishments, respectively, at Aden?

SIR S. HOARE: I have been asked to reply. The present approximate strengths of all ranks of the British Army, Indian Army and Royal Air Force at Aden are 1,238,528 and 187, respectively.

Zeidi Raids

MR. DAY asked the Secretary of State for the Colonies whether he can give particulars of the bombing which took place at Kataba; whether the Zeidis have now discontinued their aggression upon the territories in the Aden Protectorate; and if the two sheikhs who were kidnapped by the Zeidi soldiers have been returned to their towns?

SIR S. HOARE: I have been asked to reply. The Zeidi Headquarters at Kataba have been bombed on five several days, and the Zeidi Headquarters at Dala on one day. Whilst operations are still in progress, it would not be in the public interest to give further particulars. As stated in the reply by my right hon. friend the Secretary of State for the Colonies to the hon. and gallant Member for Central Hull (Lieut.-Commander Kenworthy) on March 12, the Zeidis have for some years been in occupation of portions of the Aden Protectorate territory and this encroachment still continues. The answer to the last part of the question is in the negative.

Anti-Aircraft Target, Putney

SIR F. HALL, on March 15, asked the Secretary of State for War whether he is aware that a new drill hall is now being built for the 53rd and 54th City of London Anti-aircraft Brigades, Royal Artillery (Territorial Association), at Lytton Grove, Putney; whether the building has been constructed on the lines for utilisation of an anti-aircraft travelling target; and whether he will at once give authority for installation of the target, while the present scaffolding is standing, so that all ranks may be in a position to obtain the necessary training?

SIR L. WORTHINGTON-EVANS: The target for this drill hall is the first of its kind to be installed, and the form it should take requires special consideration, but I hope that a decision will be reached shortly.

Aden Protectorate (Zeidi Raids)

LIEUT.-COMMANDER KENWORTHY asked the Secretary of State for the Colonies how many machines took part in the recent air raid or raids on Kataba; what number and weight of bombs were dropped; what damage was caused; whether he has information as to any persons killed or injured and whether they were combatants or non-combatants; whether our own forces suffered any casualties; and whether the Imam of Sanaa has now evacuated the territory we lay claim to?

SIR S. HOARE: I have been asked to reply. I would refer the hon. and gallant Member to the answer given yesterday to a similar question. It would not be in the public interest to furnish the particulars asked for whilst these operations are still in progress. No casualties were suffered by our own forces.

THE ROYAL AIR FORCE

London Gazette, March 13, 1928

General Duties Branch

The following are granted short service commns. as Pilot Officers on probation, with effect from, and with seniority of, March 2:—R. Y. Bootes, A. M. Cowell, A. J. P. Groom, A. Haywood, A. D. Jaffé, R. V. Redpath (Sec. Lieut. R.A. (T.A.)), R. E. S. M. Vinning, A. H. Westwood.

The following Flying Officers are transferred to Reserve:—J. A. Mollison, Class C (March 14); J. E. Doran-Webb, Class A (March 15). Flight-Lieut. L. R. Briggs is placed on retired list at his own request, March 14. The short-service commn. of Pilot Officer on probation J. D. Allcroft is terminated on cessation of duty, March 10.

Stores Branch

Flight-Lieut. G. Baker is restored to full pay from half-pay, March 8.

Medical Branch

Flight-Lieut. J. D'I. Rear is granted a permanent commn. in this rank, March 14; Flying Officer G. S. Strachan, M.B., is promoted to rank of Flight-Lieut., March 1; Flight-Lieut. D. B. Smith, M.B., is transferred to Reserve, Class D ii, March 19; Flight-Lieut. E. Alson (tempt. Capt., Dental Surgeon, General List) relinquishes his temp. commn. on resignation of his Army commn., February 29.

Chaplains' Branch

The Rev. F. W. Hillborn is granted a short-service commn. as a Chaplain with relative rank of Sqdn. Leader, March 2.

Memoranda

The permission granted to Sec. Lieut. T. L. Calvert to retain rank is withdrawn on his enlistment in ranks of R.A.F., February 21.

The following are deprived of permission to retain rank on conviction by the Civil Power:—Lieut. H. Rowbotham, December 10, 1927; Sec. Lieut. C. W. File, February 2.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The following are granted commns. on probation in ranks stated, with effect from March 13:—Class A.—Flying Officer G. E. F. Boyes, Pilot Officer H. J. Padfield. Class B.B.—Pilot Officer T. Herbert.

D. L. Eskill is granted a commn. in Class C as Flying Officer, March 13. The following Pilot Officers are promoted to rank of Flying Officer, March 13:—A. L. Muir, E. K. Rayson.

Flying Officer E. P. Clacey is transferred from Class C to Class A, March 5; Flying Officer R. F. Overbury is transferred from Class A to Class C, March 9; Flying Officer H. J. Price is transferred from Class B to Class C, January 29.

AUXILIARY AIR FORCE

General Duties Branch

No. 601 County of London (Bombing) Squadron.—The following Pilot Officers to be Flying Officers, February 17:—R. Bellville, J. S. Schreiber.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captains: W. G. S. Mitchell, C.B.E., D.S.O., M.C., A.F.C., to H.Q., Aden Command, 8.3.28, to command from date of arrival. J. B. Bowen, O.B.E., to H.Q., Iraq Command, for Tech. Staff duties, 9.3.28.

Wing Commander: R. F. S. Morton to R.A.F. Depot, Uxbridge, whilst attending Senior Officers' War Course, 12.3.28.

Wing Commanders: A. H. Jackson, to No. 3 Flying Training Sch. (Cadre), Spittlegate, to command, 1.3.28. D. A. Oliver, D.S.O., O.B.E., to H.Q., Iraq, for Air Staff (Training) duties, 9.2.28. R. Leckie, D.S.O., D.S.C., D.F.C., to H.M.S. *Courageous*, for duty as Senior R.A.F. Officer, 21.2.28. R. M. Field, to H.M.S. *Eagle*, for duty as Senior R.A.F. Officer, 9.3.28.

Squadron Leaders: J. J. Breen, to No. 55 Sqdn., Iraq, 23.2.28. F. H. Coleman, to No. 7 Sqdn., Worthy Down, 27.1.28.

Squadron Leaders: W. A. McClaughry, D.S.O., M.C., D.F.C., to Wessex Bombing Area, H.Q., Andover, 22.2.28. A. R. Arnold, D.S.C., D.F.C., to No. 17 Sqdn., Upavon, 31.3.28. Hon. R. A. Cochrane, A.F.C., to H.Q., Aden Command, 8.3.28. G. F. Breese, D.S.C., to R.A.F. Depot, Uxbridge, 27.2.28.

Flight Lieutenants: F. J. Fogarty, D.F.C., to No. 30 Sqdn., Iraq, 23.2.28. R. Ivelaw-Chapman, D.F.C., to No. 70 Sqdn., Iraq, 23.2.28. J. S. T. Fall, D.S.C., A.F.C., to R.A.F. Depot, Uxbridge, 27.1.28. G. M. F. O'Brien, D.S.C., to R.A.F. Depot, Uxbridge, 16.2.28. J. F. Lawson, A.F.C., to R.A.F. Depot, Uxbridge, 27.1.28. A. F. Lang, M.B.E., to R.A.F. Depot, Uxbridge, 27.1.28. A. F. Lang, M.B.E., to Air Ministry (Signals Branch), 1.3.28. G. S. Hodson, A.F.C., to R.A.F. Depot, Uxbridge, 14.2.28. R. L. Sweeny, to Armament and Gunnery Sch., Eastchurch, 29.2.28.

Flight Lieutenants: E. B. C. Betts, D.S.C., D.F.C., to No. 3 Flying Training Sch. (Cadre), Spittlegate, 20.3.28. A. J. E. Broomfield, D.F.C., to Fighting Area, H.Q., Uxbridge, 1.3.28. H. J. Gemmel, to Fighting Area, H.Q., Uxbridge, 11.2.28. R. R. Greenlaw, M.B.E. and L. G. Nixon, to R.A.F. Depot, Uxbridge, 6.2.28. G. G. Banting, to No. 3 Flying Training Sch. (Cadre), Spittlegate, 18.3.28. F. G. A. Robinson, to No. 3 Flying Training Sch. (Cadre), Spittlegate, 1.3.28. N. H. Jenkins, O.B.E., D.F.C., D.S.M. and G. H. Smith, to H.Q., Iraq, 8.3.28. J. Cottle, M.B.E., D.F.C., to Armoured Car Wing, Iraq, 8.3.28. C. W. Attwood, to H.Q., Aden Command, 8.3.28.

Wing Commander: G. V. Howard, D.F.C., to Armoured Car Wing, Iraq, 9.3.28. C. G. Halliday, to No. 30 Sqdn., Iraq, 9.3.28. G. H. Russell, D.F.C., to No. 6 Sqdn., Iraq, 9.3.28. T. G. Bird, to Aircraft Depot, Iraq, 9.3.28. A. W. Fletcher, O.B.E., D.F.C., A.F.C., to No. 3 Flying Training Sch. (Cadre), Spittlegate, 12.3.28.

Wing Commander: E. J. D. Townesend, to R.A.F. Station, Upper Heyford, 25.3.28. A. L. A. Perry-Keene, to No. 6 Sqdn., Iraq, 24.2.28. S. D. Macdonald, D.F.C., to R.A.F. Depot, Uxbridge, 10.3.28. J. N. Boothman, to No. 30 Sqdn., Iraq, 24.2.28. J. V. Kelly, to H.Q., Transjordan and Palestine, 3.3.28.

Flying Officers: C. W. Booth, M.B.E., to Aircraft Depot, India, 28.2.28. L. T. Kerry, M.C., to Armoured Car Wing, Iraq, 23.2.28. J. E. G. Thomas and G. B. Beardsworth, to No. 28 Sqdn., India, 28.2.28. A. H. W. J. Cocks, to No. 60 Sqdn., India, 28.2.28. E. D. MacL. Hopkins and S. H. C. Gray, to No. 20 Sqdn., India, 28.2.28. T. E. Worsley, to No. 1 Wing H.Q., India, 28.2.28. L. H. Anness, to No. 70 Sqdn., Iraq, 23.2.28. A. F. Merritt, to No. 55 Sqdn., Iraq, 23.2.28. W. J. Pickard and E. F. Wain, to No. 5 Sqdn., India, 28.2.28. L. T. Keens and K. C. Netherton, to No. 31 Sqdn., India, 28.2.28. H. R. F. Baxter, to Armament and Gunnery Sch., Eastchurch, 29.2.28. J. W. White, to R.A.F. Depot, Uxbridge, 27.1.28. B. J. J. Nimmo and J. S. Dick, to R.A.F. Depot, Uxbridge, 16.2.28. F. Boston, to R.A.F. Depot, Uxbridge, 4.2.28. W. V. R. Nicholl, to Night Flying Flight, Biggin Hill, 27.1.28. J. McGuinness, to Armament and Gunnery Sch., Eastchurch, 27.1.28.

Flying Officers: A. G. Hill and J. H. Caulfield, to R.A.F. Training Base Leuchars, 1.3.28. M. Wiblin, to R.A.F. Base, Gosport, 1.12.27. E. S. C. Vaughan, M.C., and S. G. Connolly, to Armament and Gunnery Sch., Eastchurch, 29.2.28. H. E. E. Weblin, to R.A.F. Base, Calshot, 5.3.28. E. R. Maddox, M.C., to R.A.F. Base, Calshot, 20.2.28. J. Sutherland, M.B.F., to Aircraft Park, India, 23.2.28. R. E. Bain, to No. 27 Sqdn., India, 23.2.28. (Hon. Flight-Lieut.) J. A. Bertram, to No. 5 Sqdn., India, 23.2.28. F. S. O'Hanlon, to No. 8 Sqdn., Middle East, 23.2.28. C. G. Lucas, to No. 31 Sqdn., India, 23.2.28. A. Allen, to No. 8 Sqdn., Middle East, 23.2.28.

Flying Officers: D. F. W. Atcherley, to No. 2 Sqdn., Manston, 20.2.28. V. Harris and W. L. Robertson, to Armoured Car Section, Aden, 12.1.28. S. R. Sunnucks, to Marine Aircraft Experimental Estab., Felixstowe, 9.3.28. L. S. Birt, to Marine Aircraft Experimental Estab., Felixstowe, 3.3.28. P. B. Chubb, to Armament and Gunnery Sch., Eastchurch, 29.2.28. B. B. Dowling, to R.A.F. Depot, Uxbridge, 1.3.28. W. A. Shorten, to Electrical and Wireless Sch., Flowerdown, 10.3.28. H. V. Smith, D.C.M., to No. 6 Sqdn., Iraq, 9.3.28. M. H. Garnons-Williams, to H.M.S. *Eagle* 9.3.28. E. B. Forster, C. V. Lock, J. J. Nolan, L. H. Ross, W. F. Rimmer, and P. B. Chubb, to H.Q., Iraq, 8.3.28. T. J. O'Doherty, to No. 4 Flying Training Sch., Middle East, 9.3.28. P. McK. Terry, to No. 70 Sqdn., Iraq, 9.3.28. N. J. Wiltshire,

to Armoured Car Wing, Iraq, 8.3.28. A. Lees, to Armoured Car Wing, Iraq, 24.2.28. J. E. Preston, to No. 45 Sqdn., Middle East, 1.3.28. W. L. Robertson, to Armoured Car Section, Aden, instead of to No. 8 Sqdn., as previously notified, 14.1.28.

Pilot Officers: I. McL. Cameron, C. R. Clarke, G. E. Klein, J. H. Lindell, J. F. McKenna and D. T. Saville, to Central Flying Sch., Wittering, on appointment to Short Service Commns, 14.2.28. J. W. Pease, to No. 31 Sqdn., India, 28.2.28. C. C. D. Williams, to No. 28 Sqdn., India, 28.2.28.

Pilot Officers: G. M. Buxton, to No. 20 Sqdn., India, 23.2.28. R. J. Carvell, to No. 28 Sqdn., India, 23.2.28. B. G. Farrow, to No. 28 Sqdn., India, 23.2.28. J. C. A. Johnson, to No. 5 Sqdn., India, 23.2.28.

Pilot Officers: B. W. Barton, to R.A.F. Training Base, Leuchars, 20.2.28. H. B. Collings, C. E. Kay, and W. T. Walton, to No. 2 Sqdn., Manston, 20.2.28. A. R. Ward, to R.A.F. Training Base, Leuchars, 20.2.28. P. F. G. Bradley and R. C. Hancock, to No. 2 Squadron, Manston, 20.2.28. P. D. Cracroft, R. David, S. Hatton, G. N. S. Lane, and A. G. C. Somerhough, to R.A.F. Training Base, Leuchars, 20.2.28. G. W. Monk, to No. 13 Sqdn., Andover, 20.2.28. J. E. Stuart-Lyon, to No. 4 Sqdn., S. Farnborough, 20.2.28. R. G. Forbes, to No. 13 Sqdn., Andover, 20.2.28. J. B. Knapp and F. J. Taylor, to No. 216 Sqdn., Middle East, 19.2.28. R. F. Gandy, to No. 30 Sqdn., Iraq, 24.2.28. J. H. L. Maund, to No. 14 Sqdn., Palestine, 23.2.28. J. W. Wood, to No. 30 Sqdn., Iraq, 24.2.28. R. Y. Bootes, A. M. Cowell, A. J. P. Groom, A. Haywood, A. D. Jaffé, R. V. Redpath, R. E. S. M. Vinning, and A. H. Westwood, to R.A.F. Depot, Uxbridge on appointment to Short Service Commns., 2.3.28.

Stores Branch

Wing Commander: E. J. Sayer, M.C., to Supply and Stores Depot, Aden Command, 8.3.28.

Squadron Leader: J. Walker, to R.A.F. Depot, Uxbridge, 16.2.28.

Flight Lieutenants: H. F. Webb and J. R. Gardiner, to R.A.F. Depot, Uxbridge, 27.1.28.

Flight Lieutenants: H. F. Webb, to Station H.Q., Bircham Newton, 5.3.28. W. St. J. Littlewood, to R.A.F. Depot, Uxbridge, 2.3.28. E. S. Bullen, M.B.E., to Air Ministry, Directorate of Equipment, 5.3.28. G. Baker, to Supply Services, Iraq, 9.3.28.

Flying Officers: W. J. Cleasby and J. McCarthy, to R.A.F. Depot, Uxbridge, 16.2.28. C. Littlejohn, M.M., to R.A.F. Depot, Uxbridge, 27.1.28.

Flying Officers: N. Dainty, to R.A.F. Depot, Uxbridge, 2.3.28. H. J. Bamber, to R.A.F. Depot, Uxbridge, 5.3.28. C. Littlejohn, M.M., to Air Ministry, Directorate of Equipment, 5.3.28. H. Sleight, to No. 3 Flying Training Sch. (Cadre), Spittlegate, 1.3.28. J. G. Smithson, to Sch. of Naval Co-operation, Lee-on-Solent, 2.3.28. H. D. Giblett, to No. 45 Sqdn., Middle East, 1.3.28.

Accountant Branch

Squadron Leader: P. A. Simmons, to R.A.F. Depot, Uxbridge, 4.2.28.

Flying Officers: W. P. Barrell, to R.A.F. Station, Worthy Down, 12.3.28. F. J. S. Short, to R.A.F. Depot, Middle East, 1.3.28. J. Charles, to No. 216 Sqdn., Middle East, 1.3.28.

Medical Branch

Squadron Leaders: P. T. Rutherford, O.B.E., to Princess Mary's R.A.F. Hospital, Halton, 6.3.28. T. C. St. C. Morton, M.D., M.R.C.P., D.P.H., D.T.M. & H., to Pathological Lab., Halton, 12.3.28. F. J. Murphy, M.B., to No. 2 Flying Training Sch., Digby, 8.3.28. T. McClurkin, M.B., D.P.H., D.T.M. & H., to Far East Flight, 11.2.28.

Flight Lieutenant: T. V. O'Brien, M.B., to Pathological Lab., Halton, 12.3.28.

Flight Lieutenant: J. A. Perdrau, M.D., to No. 3 Flying Training Sch. (Cadre), Spittlegate, 1.3.28.

Flight Lieutenants (Dental): J. R. Williams, to Home Aircraft Depot, Henlow, 19.3.28. J. M. Jamie, to H.Q., Halton, on appointment to a Temp. Commn., 1.3.28.

Flying Officers: C. W. Coffey, to R.A.F. Depot, Uxbridge, 4.3.28. C. P. O'Toole, to Station H.Q., Bircham Newton, 5.3.28.

Flying Officers (Dental): S. McC. Craig, to R.A.F. Station, North Weald, 14.3.28. H. E. Glover and G. M. Titterton, B.D.Sc., to R.A.F. Depot, Uxbridge, on appointment to Temp. Commns., 12.3.28.

Flying Officer (Q.Mastr. Medical): P. H. Musgrave, to R.A.F. General Hospital, Iraq, 20.2.28.

Chaplains' Branch

Rev. G. L. Robinson, D.S.O., to R.A.F. Depot, Uxbridge, 16.2.28. Rev. A. W. Brown, M.A., B.D., to No. 45 Sqdn., Middle East, 9.3.28.

NAVAL APPOINTMENT

The following appointment was made by the Admiralty on March 17:—

Promotion

Lieut. T. O. Bulteel (Flying Officer, R.A.F.), to rank of Lieut. Commr. (seniority, March 15).

AIR MINISTRY NOTICES

Publication of Air Navigation Directions, 1928 (A.N.D. 6A.).

ATTENTION is drawn to the publication of the Air Navigation Directions, 1928 (A.N.D. 6A.), amending the previous Directions (A.N.D. 6). Copies of the new Directions are obtainable, price 3d. net, from H.M. Stationery Office, Adastral House, Kingsway, W.C.2, or through any bookseller. (No. 18 of 1928.)

Licensing of Pilots of Aircraft Flown for Industrial Purposes

ATTENTION is directed to Article 8 of the Air Navigation (Amendment) Order, 1928, by which paragraphs 3 and 4 of Schedule V of the Principal Order are amended so as to include aircraft "being flown for any industrial purpose" with aircraft carrying passengers for hire or reward.

The effect of these amendments is that a person applying for a pilot's licence to fly aircraft for any industrial purpose must satisfy the requirements for a person applying for a pilot's licence to fly aircraft carrying passengers or goods for hire or reward (i.e., a Class "B," Pilot's Licence).

This Order came into operation on March 1, 1928. (No. 19 of 1928.)

ROYAL AIR FORCE RUGBY UNION

Inter-Unit Cup Competition.—In the final round of the above played at Uxbridge on Monday, March 19, the Royal Air Force Station, Duxford (Nos. 19, 29 and 111 Fighter Squadrons), beat the Royal Air Force Station, Worthydown (Nos. 7 and 58 Bombing Squadrons), by 13 points, 1 dropped goal, 1 penalty goal and 2 tries to 8 points 1 goal and 1 try. The teams were:—

Duxford: Leading Aircraftman M. Munslow; Pilot Officer R. R. Nash, Pilot Officer J. R. H. Pott, Flight Lieutenant G. V. Tyrrell, Flying Officer T. A. Hale Munro; Aircraftman Blennerhassett, Pilot Officer Philpot; Pilot Officer Clarke, Flying Officer Clayton, Flying Officer O'Callaghan, Aircraftman Maxwell, Aircraftman Yule, Aircraftman Sturgeon, Leading Aircraftman Clarke, Aircraftman Swannick.

Worthydown: Leading Aircraftman Watts; Pilot Officer Powell, Flying Officer Whitby, Flying Officer Davis, Aircraftman Hooper; Flying Officer Odbert, Pilot Officer MacLean; Flying Officer Stevens, Flying Officer Drew, Corporal Nash; Flight Sergeant Sheppard, Aircraftman Rooms, Flying Officer Patch, Flying Officer Merton, Leading Aircraftman Butler.

Referee: Dr. A. R. Snowden (London Society).

Royal Air Force v. The Army.—The following have been selected to represent the Royal Air Force versus The Army at Twickenham on Saturday, March 24.—Flying Officer T. A. Hale Munro (Duxford), Aircraft Apprentice P. B. Coote (Halton), Pilot Officer J. R. H. Pott (Duxford), Flying Officer F. S. Hodder (Andover), Flying Officer C. H. G. Brembridge (Sealand), Flying Officer R. V. M. Odbert (Captain) (Worthydown), Squadron Leader J. C. Russell, D.S.O. (Air Ministry), Flying Officer C. J. S. O'Malley (Halton), Flight Sergeant G. F. Cockell (Henlow), Pilot Officer H. A. Constantine (North Weald), Flight Lieutenant C. D. Adams (Halton), Flight Lieutenant J. S. Chick, M.C., A.F.C. (Wittering), Flying Officer G. R. Beamish (Bicester), Corporal M. G. Christie (Shrewsbury), Flying Officer F. V. Beamish (Cranwell), or Flying Officer R. J. Stevens (Worthydown).

Play commences at 3 p.m.

PERSONALS

Married

WING COMMANDER BERTINE ENTWISLE SUTTON, D.S.O., O.B.E., M.C., was married, on March 17, at the Church of the Holy Trinity, Sloane Street, to MARGARET GRISELDA, only daughter of Alexander Wedderburn, K.C., C.B.E., and widow of STUART DE LA RUE.

To be Married

The engagement is announced between SQUADRON-LEADER A. E. BARR-SIM, M.B., Ch.B., R.A.F., and PEGGIE, widow of FLIGHT-LIEUT. WALTER KEMP, of 26, Cheriton Place, Folkestone, daughter of the late Colonel E. B. Snow and of Mrs. E. B. Snow.

The marriage arranged between CAPTAIN GEORGE FRANCIS MEAGER, A.F.C., and BETTY ROMILLY, only daughter of Mr. and Mrs. GRIFFITH BREWER, of Little Burvale, Walton-on-Thames, will take place at the Brompton Oratory, on Saturday, April 28, at 2 p.m.

A marriage has been arranged, and will take place at the Church of the Holy Spirit, Nice, on Monday, March 26, between SQUADRON-LEADER JOHN K. WELLS, A.F.C., R.A.F., Research Department, Woolwich, and ELIZABETH DALWAY, youngest daughter of the late ROBERT EVANS YOUNG, of Ottawa.

Items

GROUP-CAPTAIN C. R. S. BRADLEY, R.A.F., had the honour of being received by the King on March 16, upon his appointment as His Majesty's Air Attaché at Rome.

The will of the late HON. MAY HARBORD, of Chelsea Park Gardens, Chelsea, wife of the Hon. Assheton Harbord, has been proved at £14,422. All her aeronautical cups and trophies were bequeathed to the Victoria and Albert Museum, South Kensington.

MESSRS. S. SMITH AND SONS (M.A.), LTD., ANNUAL DINNER

The staff and friends of the above firm assembled at the Hotel Russell, on Saturday evening, the 10th inst., on the occasion of the annual dinner and dance. As usual, the function was very strongly supported, and among the guests were included a number of the staff from the firm's subsidiary companies, including Messrs. The Robinhood Engineering Co. (K.L.G. Plugs), M-L Magneto Syndicate, Ltd., and Ed. Jaeger (London), Ltd.

Mr. Henderson Cleland, Chairman of the company, in proposing "The firm and staff," coupled with it the name of the Managing Director, Mr. A. Gordon Smith, and spoke of his guidance and enthusiasm in all matters concerning not only the business of S. Smith and Sons (M.A.), Ltd., but also the social side.

Mr. A. Gordon Smith (Chairman), in responding, congratulated the staff upon the successful period which the firm had experienced since they were last assembled for this function, and he thanked them very heartily indeed for the way in which one and all had worked for this end, and expressed his appreciation that with such efforts, the forthcoming year would be even more successful. Major Carington, of Messrs. The Robinhood Engineering Works, expressed his extreme satisfaction with the manner in which K.L.G. plug sales had increased, which he considered was entirely due to the greater facilities now at their disposal through the recent merger.

Mr. Begbie, another director of S. Smith and Sons (M.A.), Ltd., in proposing the toast of "our guests," referred to the enthusiasm of Mrs. Gordon Smith on these occasions, and which he considered comparable to that of the chairman.

Suitable replies were made by Mr. R. D. F. Paul and Mr. W. Peto; musical items were rendered by Miss Gwaldys Wales and Mr. H. R. Buckland, while the latter part of the programme was devoted to dancing, which terminated a most enjoyable evening.

COMPANY DOINGS

D. Napier & Son, Ltd., Annual Report

THE directors of D. Napier and Son, Ltd., announce that their annual report, which will be issued shortly, will show that the net profits for the year ended September 30, 1927, amounted to £169,036 12s. 9d. They have decided to recommend at the forthcoming annual general meeting that a final dividend of 10 per cent., less income-tax, be paid on the ordinary shares, making 15 per cent., less income tax, for the year, and that £50,000 be transferred to general reserve. They also give notice that the ordinary share transfer books will be closed from March 27 to April 10, 1928, both days inclusive. Also that the 8 per cent. non-cumulative preference share transfer books will be closed from March 21 to 31, 1928, both days inclusive.

PUBLICATIONS RECEIVED

Aeronautical Research Committee Reports and Memoranda: No. 1104 (Ae. 281). On the Flow of Air Behind an Inclined Flat Plate of Infinite Span. By A. Fage and F. C. Johansen. February, 1927. Price 1s. 3d. net. No. 1105 (Ae. 282).—The Aerodynamics of a Simple Servo-Rudder System. By H. M. Garner and Flight-Lieut. C. E. W. Lockyer. May, 1927. Price 6d. net. H.M. Stationery Office, Kingsway, London, W.C.2.

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(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

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